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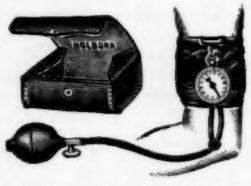

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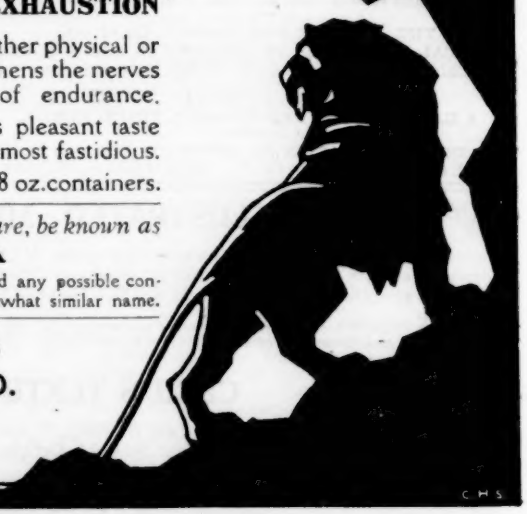

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FELLOW-GUESTS,—I don't know how it is with you, but, when a medical man approaches me in the language of compliment, I am filled with an uneasy suspicion that somebody's tobacco is going to be rationed. That possibility, however, is behind us for this evening, so we can the better appreciate Colonel MacArthur's flattering diagnosis of our several virtues and merits. Some of us must have all of the symptoms indicated. I have one. I am a story-teller.

LORD DAWSON, members of the Royal Society of Medicine, gentlemen, and ladies, will you lend me your patience while I tell you a perfectly true story?

Nearly 300 years ago there was an astrologer-physician called Nicholas Culpepper, practising in Spitalfields. And it happened that a friend's maid-servant fell sick with what the local practitioner diagnosed as plague. Culpepper was called in as a second opinion. When he arrived the family were packing up the beds, preparatory to going away and leaving the girl to die. He took charge. There was no silly nonsense about looking for the characteristic plague tongue. He only asked at what hour the young woman had taken to her bed. That gave him, as I need not tell you, "the hour of the decumbiture." He then erected a horoscope, and "inquired of the face of the Heavens how the malady might prove." The face of the heavens indicated it was not plague but just small-pox, which our ancestors treated almost as lightly as we do. And small-pox it turned out to be. So the family came back with their bedding, and lived happily ever after; the girl recovered; and Culpepper said what he thought of his misguided fellow-practitioner. Among other things, he called him "a man of forlorn fortunes with sore eyes."

Preposterous as all this was, you must remember that Culpepper justified his practice by the theory that "this creation, though composed of contraries, is one united body, of which man is the epitome, and that he, therefore, who would understand the mystery of healing must look as high as the stars."

That was a distorted shadow of the ancient idea that the universe is one in ultimate essence—which essence is sustained and embraced and interpenetrated by a creative motion or inner heat—the pneuma of certain Greek physicians, who practised 500 years before St. Paul preached at Athens. It was a noble belief; but it did not prevent Dr. Culpepper from using a pharmacopœia and therapeutics that would have made a West African witch doctor jealous. And when he came across anything that he did not understand, or that Aristotle had not provided for, he put it down to "influences" or "emanations"—same as you do a common cold.

But if he could return to earth to-day and see how things have progressed in the mystery of healing I fancy he would be quite at ease in your Zion. He believed in the transmutation of metals. He could be shown that in full blast at a Royal Society soirée—with emanations. He would find that the essential unity of creation is admitted as far forth as we have plumbed infinity; and that man, Culpepper's epitome of all, is in himself a universe of universes, each universe ordered—negatively and positively, by sympathy and antipathy—on the same lines as hold the stars in their courses.

Consequently, he would not be astonished to see men snatch out of the air an influence—an inner heat or pneuma—of which they know no more than that it visibly warms, lights, and works for them, and, invisibly, transmits their speech and vision to one side of the world on the instant that they themselves speak or look from the other. And the news that unknown influences from out of the skies lash and tear through all matter everywhere at all times would be received by him with perfect calm.

Being an astrologer, he would, of course, go to Greenwich Observatory, to learn more about those influences. There he would be given monographs on terrestrial magnetism—its daily and seasonal tides the world over, magnetic storms, sunspots, auroras, and so forth, but all discussed without any relation to the severity or incidence of prevalent epidemics and diseases. From Greenwich he would certainly push on to the B.B.C., who would tell him that there are unknown heavenly influences which prevent millions of bold youths and blushing maidens from hearing the music they would dance to—influences which at times cause the spoken word to die out under the stars as the note of a rubbed finger-bowl dies when the hand is lifted.

Presently—for he was always stronger on theory than research—he would fetch up among the laboratories where, if he was as lucky as I was this summer, he would be shown marvellous films of infected tissue being subjected to the influence of an influence called radium. Then, I fancy, the fun would begin. Up to that point, he would find the main axiom which he had quoted three centuries before accepted, proven, and in use; the influence, the inner breath, the pneuma—not only exceeding all bounds of wonder and belief in its proper manifestations, but, under the name of electricity, piping and singing in the market-place on a commercial basis.

So, as with his small-pox case, his first question after he had seen the films would be: "What was the aspect of the heavens at the time these phenomena occurred?" He would take it for granted that, with the whole universe alight to signal some tremendous secret to mankind, men would naturally look as high as the stars. And what answer would he get? When I asked a similar question of a man of science lately he said: "You'd better see a doctor." I told him that, with any luck, I expected to see ever so many of them before long. That expectation having been fulfilled to-night, I want to ask you some questions.

Isn't it likely that the multitude and significance of the revelations heaped upon us within the past few years have made men in self-defence specialise more and more narrowly? Haven't we been driven headlong to abandon our conceptions of life, motion, and matter? And isn't it human that in that upheaval men may have carried off each his own cherished prepossession and camped beside it—just as refugees do after an earthquake?

Is it then arguable that we may still mistake secondary causes for primary ones, and attribute to instant and visible agents of disease unconditioned activities which, in truth, depend on some breath drawn from the motion of the universe—of the entire universe, revolving as one body (or dynamo if you choose) through infinite but occupied space? The idea is wildly absurd? Quite true. But what does that matter if any fraction of any idea helps towards mastering even one combination in the great time-locks of Life and Death?

Suppose, then, at some future time when the bacteriologist and the physicist are for the moment at a standstill, wouldn't it be interesting if they took their problem to the astronomer, and—in modern scientific language, of course—put to him Nicholas Culpepper's curious question: "What was the aspect of the heavens when such-and-such phenomena were observed?"

An Address
ON
THE TREATMENT OF PATIENTS WITH INOPERABLE CANCER.*

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I HAVE chosen the title of my lecture to distinguish between the specific treatment of cancer and the management of a patient suffering from inoperable forms of that disease. During the last 36 years at the Christie Hospital we have tried every suggested treatment for cancer which was properly brought to our notice, and so far have not found that any drug, whether organic, inorganic, animal extract, serum, or bacteriological product, given by the mouth, subcutaneously or intravenously, had any permanent effect in arresting the growth or preventing secondary deposits. I shall not, therefore, discuss methods for the specific treatment of cancer, but at once consider the various factors in the treatment of the patient which can prolong life, alleviate suffering, and smooth the passage to the grave.

There is no greater test of the capacity of a medical man than his ability to retain the confidence of a patient who is steadily going downhill, and the management of a case of inoperable cancer will tax all the tact, knowledge, and skill of the ablest practitioner.

TWO IMPORTANT QUESTIONS.

The first, and in many ways the most difficult, factor we have to deal with is the mental state of the patient, and out of this two important questions arise—one is whether a patient should be told that he has cancer, and the other how far we are justified in holding out a hope of recovery. With regard to the first question, I am sure that whenever possible it is better to avoid telling the patient the nature of his disease, and especially never to be the first to use the word "cancer," which has so many sinister connotations to the lay mind. The question, Is it cancer? is sure to be asked by the patient or his friends, and many patients who will ask to be told the worst are least fitted to know it. We have all seen cases where a patient suffering from cancer is quite able to go about and do his or her daily work without any great difficulty, and where such a patient going to a doctor or hospital has been told that he or she had a cancer and from that moment becomes a chronic invalid, although no physical change has taken place in the disease which would render the daily work more difficult. How much should be told must be left to the discretion of the doctor and his knowledge of the character of his patient. Of course, there are cases where it is necessary to tell the patient the full significance of his illness in order that proper provision may be made for the disposal of property, the care of a family, or the continuity of a business. In all cases where there is no doubt of the diagnosis a doctor, for the sake of his own reputation, should tell some relative or friend of the patient what is the nature of the disease.

As regards the second question, when a patient knows that he has cancer I am strongly of opinion that it is most desirable to hold out the hope of recovery even to the last. The different mental outlook of a man who believes his condition to be absolutely hopeless from that of a man who believes that he has even a 1 in 1000 chance of recovery is enormous, and may prevent what we not unfrequently see—that is, suicide by a patient soon after he has been told that he was suffering from cancer. That one is justified in holding out a hope of recovery, no matter how small the chance may be, is shown by the rare cases on record in which an advanced cancer has retrogressed and eventually disappeared. The cases reported by that most careful of surgeons, Sir James Paget, and the well-known case by the late Mr. Pearce Gould, in which the diagnosis was undoubted and secondary growths present, are alone sufficient to prove that recovery is not impossible, and this possibility is confirmed by the fact that in transplanted cancer in rats and mice it occasionally happens that after a large growth has been formed retrogression has set in and complete recovery. I have no doubt that the reputation of certain cancer cures has been made by one of these rare cases of recovery occurring in a patient who happened to be under the special treatment at the time.

I think these facts justify a practitioner in holding out a possible chance of recovery even in advanced cases, and should stimulate our efforts to discover what change must take place in the body to produce this retrogression, and possibly to discover some drug or mode of treatment which will bring the change about.

GENERAL CONDITION OF THE PATIENT.

After the mental state we have next to consider the general condition of the patient, and, in most advanced cases, we find a state of ill-health characterised by a peculiar sallow complexion, anæmia, and progressive loss of weight, the condition generally known as cancerous cachexia. The question here arises whether there is any specific cachexia due to the growth of cancer apart from the injurious effects on the general health of ulcerations and constant discharges, secondary infections, loss of blood, interference with nutrition from many causes, including secondary deposits in important viscera, the wearing effects of pain, and often a mental depression allied to melancholia. I have carefully looked for evidence of a special cancer cachexia in the few cases where all these secondary causes of ill-health could be excluded, and I am still awaiting proof that the cell proliferation of cancer can per se produce cachexia. That advanced but not ulcerated cancer may exist for a long time without any cachexia, if it affects organs which are in no way concerned with nutrition, is best shown in certain cases of cancer of the breast. I watched one case, where operation had been refused, for ten years and there was no cachexia until ulceration occurred, when the breast was a hard mass the size of a fœtal head; another similar case was in an actress who carried on her work on the stage for three years without her friends being aware that she was ill. Instances of cancer being found in women apparently in the best of health are well known to gynæcologists in the case of cancer of the body of the uterus.

Whether primary or secondary we have, however, to deal with a cachectic state in most cases of advanced cancer, and it is well worth while to treat this condition by fresh air, tonics, and alcohol. An open-air life in a mild climate is undoubtedly to be advised in all cases where the patients' means and circumstances admit of it; where they do not it is a needless cruelty to suggest it. In all cases encourage the patient to continue his usual pursuits as long as he is physically capable of doing so; nothing is worse than continued idleness, with the attention concentrated on the bodily sensations. Of course, any intercurrent condition such as indigestion or constipation must be treated on ordinary lines, but as a general tonic, which often greatly improves the general health, I rely upon small doses of arsenic with ammonio-citrate of iron, and either calumba or gentian. If iron disagrees the arsenic can be given with dilute hydrochloric acid and compound tincture of cinchona.

Alcohol is often a most valuable adjunct to treatment, and in these patients there can be no danger of setting up alcoholic habits; it acts as a euphoric agent, relieves pain, and is a food which requires no digestion. I consider that its use helps the patient to bear his troubles and prolongs his life by four to six weeks. The amount need not be large. I rarely

* Being the substance of a post-graduate lecture delivered at the Manchester Royal Infirmary on Nov. 9th, 1928.

exceed the equivalent of two ounces of absolute alcohol in the 24 hours, and it may be given in the form of beer or stout with meals, whisky or gin as a night-cap, or port wine between meals. Another point which has an important bearing upon the general health is the careful local treatment of septic infections of ulcerated surfaces. For this purpose I have found the best antiseptics to be those which are the least irritating, and chiefly rely on peroxide of hydrogen or sanitas, weak solutions of acriflavine or phenol and boric acid.

Symptomatic Treatment.

We next come to symptomatic treatment, and here the relief of pain is easily the first in importance. In facing what may be a treatment of long duration, it is best to put off as long as possible the use of opium or morphia, which will be our sheet anchor in the later stages, and all the more efficacious if the patient has not been accustomed to them earlier on. It is often worth while to be content to relieve pain and make it bearable without seeking to abolish it altogether; to do the latter needs very much larger doses of the drugs, and they sooner lose their effect and have to be changed.

In the early stages aceto-salicylic acid is most useful and does no harm; grs. 10 to 20 may be given every eight hours so long as it is effective. When no longer adequate it may be replaced by phenacetine or the somewhat more powerful pyramidon or acetanilide, but care must be taken lest the anæmia should be increased or blood changes produced which may cause cyanosis. I have not found the luminal group of drugs of any use; in adequate doses they will certainly produce sleep, but the pain is not relieved before the sleep comes on, and when the patient wakes up the pain returns at once in its full intensity. I have already referred to the use of alcohol, but may again lay stress upon its power of relieving pain; a single full dose may be given for an occasional acute exacerbation of pain, especially in patients not habituated to it, but its chief use is as an adjunct to the other anodynes, where it seems to have a synergical action and increase their effect. Sooner or later, however, we have in most cases to fall back on morphia and opium, and I am sure that opium preparations given by the mouth are the best for regular use, reserving the hypodermic administration of morphia for acute exacerbations of pain and the latest stages where relief cannot otherwise be obtained. In some cases, however, we find that as the bodily strength fails pain diminishes, and as the end of life approaches less anodynes are required.

Where suffering is severe there should be no hesitation in giving opium or morphia in adequate quantity, and the doses needed will often many times exceed the maximum of the Pharmacopœia. I am sure that at times patients suffer needlessly owing to the drug being given in too small doses, and I fear that the provisions of the Dangerous Drugs Act have deterred some practitioners from making full use of the means at their disposal for the relief of pain. I find that for regular use over long periods the opium preparations which are made from watery extracts cause less digestive disturbance than the tincture, and I rely upon the liquid extract in hospital practice. The somewhat more palatable preparations such as liq. opii. sedativus, nepenthe, or omnopon are equally useful where the patient can afford them. I think that all these preparations of opium are more powerful in relieving pain than their equivalent in morphia alone, and that their superiority is especially seen in the longer duration of their action, so that the dose need not be so frequently repeated. The effect of the same amount of morphia given in the form of liq. morph. hydrochlor. will wear off in four or five hours, whereas the action of the opium will endure for eight or more. I usually begin with 10 minims of the liquid extract every eight hours, the first dose on retiring at night, the second in the early morning, and the third in the middle of the day. Some patients will go on in fair comfort with this dose for several months, but usually it has to be increased gradually and may reach an ounce or even more; in the large majority of cases, however, 60 to 90 minims will be sufficient even to the end of life.

In the most severe forms of pain, such as the compression of the brachial plexus by masses of hard glands in the axilla and above the clavicle, in some cases of cancer of the pancreas, liver, stomach, or the pelvic organs, resort has to be made to the hypodermic use of morphia either as a substitute for or in addition to oral administration. Beginning with a quarter of a grain the amount needed eventually may be as much as grs. 20 of the acetate in the 24 hours; it is not easy to give these large doses hypodermically unless the very soluble acetate is used, and even with it the limit is about grs. 24.

How can we judge the right amount of opium or morphia in a given case? I have usually laid down the standard that if the patient can get five or six hours of fairly continuous sleep, and can take his food during the day, he is not suffering intolerable pain and the drug need not be increased; on the other hand, if it is found that there is contraction of the pupils the dose is unnecessarily large and should be reduced. In some cases it is desirable to stop opium or morphia for a few days and then start again with a smaller dose; to tide over this period I have found hyoscine to be the best substitute for morphia; as much as a sixtieth of a grain may be given hypodermically for a few days, but cannot be continued longer on account of the other effects of the drug. One other recommendation I wish to make, and that is not to give strychnine or any of its preparations to patients with pain; it seems to increase the perception of painful impressions, and this more than counterbalances its value as a tonic. In some cases I have found the same effect from caffeine, and that a limitation of tea and coffee materially lessened the suffering.

Distressing pain of a smarting character is often due to the irritation of exposed nerve-endings on the surface of an ulcer, and can be relieved by proper dressings, and so avoid the use of general anodynes. Local anodynes may be applied to the ulcerated surface, and the most useful are phenol and its higher homologue guaiacol in solution, the subacetate of lead as a lotion or paint, and orthoform in very fine powder. Cocaine and its substitutes are of little value owing to the short duration of its action; in stomach cases, however, where food causes intense pain, a dose of cocaine will sometimes allow a small meal to be taken a quarter of an hour after the drug.

A symptom which causes much distress in cases of cancer within the mouth is the free secretion of saliva, when swallowing is painful or difficult. Where there is ulceration of the mucous membrane the regular use of a lotion containing borax, chlorate of potash, and sanitas as a mouth-wash gives great relief, and as it is cheap it can be used freely. The best internal remedy is belladonna in the form of the tincture, but it must be pushed, and doses of 20 or 30 minims may be required; if opium is being taken the belladonna may be added to one or more of the daily doses. As a last resort atropine may be given hypodermically; a sixtieth of a grain will probably be required.

Hæmorrhage is rarely an event which requires treatment; if from a large vessel it means a merciful end for the patient; if from small vessels, it usually ceases before the circulation is much weakened. Where there is a continual oozing of blood from a large ulcerated surface there is no better application than the solution of perchloride of iron. Adrenalin is of no use, as the bleeding is from thin-walled capillaries which contain no muscular tissue upon which adrenalin can act.

I will not now discuss the various surgical procedures which can be carried out to prolong life when occlusion has taken place or is threatened in some part of the alimentary canal, the respiratory or urinary tract. Each case must be considered on its merits, and I only wish to say that in my opinion colostomy for rectal cancer is the most satisfactory of all

palliative operations and almost always worth doing. I have had patients living useful lives three to five years after the operation. The least satisfactory is the operation of tracheotomy for laryngeal cancer, though it is hard to refuse it to a patient dying from asphyxia.

Reputed Cures.

Finally, what are we to do when a patient who has heard of some reputed cancer cure wishes to try it and asks our sanction or even our coöperation? I do not think we should resent this attitude on the part of a patient; it is only human nature to follow a will-o'-the-wisp when all seems dark ahead; if the treatment proposed is not a secret remedy, and we can be sure that it will not do actual harm, I see no reason why we should not humour the patient and loyally do our best to help him; it will, at the least, occupy his mind. If, however, the remedy or treatment proposed is harmful or a secret, as to the nature of which we are told nothing, I think we must refuse our sanction and, if the patient persists, refuse to take any responsibility and retire from the case.

Never tell a patient suffering from cancer or his friends that there is nothing to be done; so long as life lasts there is help to be given, and there are few forms of disease where the doctor can earn more gratitude than he can by his management of a case of inoperable cancer. In some cases where it is obvious that death would be the greatest mercy possible, it may be well for the practitioner to remember the words of the poet Clough:—

> "Thou shalt not kill; but need'st not strive
> Officiously to keep alive."

A CLINICAL AND BIOCHEMICAL

Study

OF

ALLERGY.

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II.*

The Urine.

A study of the urine has proved of very great interest and importance in allergic states, and it is no exaggeration to say that we can deduce from a given specimen taken from a person with allergic symptoms whether it was passed at the onset or during the paroxysm or in the period following it, and can also predict the urinary findings from the condition of the patient at a given time. There are two phenomena which we believe to be almost if not quite constant in persons with allergic symptoms at certain times during the periods of active manifestation—viz., the ether reaction discovered by one of us (G. H. O.), and the deposition of urates or uric acid in the urine on cooling. Before considering the urinary findings in detail it is advisable to summarise what we have found to occur in the cycle of events that takes place in all acute allergic states—e.g., an attack of asthma, urticaria, angeioneurotic œdema, or migraine, and in the paroxysms of itching that occur periodically in prurigo and infantile eczema.

Cycle of Events in Allergic Conditions.

In the period just preceding and during the paroxysms we find:—

Blood.—1. The amino-acid content rises. 2. The uric acid and creatinine are apparently increased. 3. The chloride content of the whole blood falls.

Urine.—1. Free acidity rises. 2. Urates are often deposited when the urine cools. 3. Diminished water excretion, so that the specific gravity is usually high. 4. Retention of chlorides. 5. Ether reaction strongly positive. 6. Ammonia excretion rises and the ratio of free acid to ammonia-combined acid is altered. 7. Excretion of amino-acid, creatinine, and uric acid begins to rise.

In the period following the subsidence of the paroxysm we find:—

Blood.—1. The amino-acid content falls. 2. The uric acid and creatinine diminish. 3. The chloride content of the whole blood rises.

Urine.—1. The free acidity rapidly and progressively falls, and the urine tends to become neutral and finally alkaline, sometimes strongly so. 2. Increased excretion of water, so that the volume is raised and the specific gravity falls (post-paroxysmal diuresis). 3. The excretion of chlorides is increased. 4. The ether reaction diminishes and may entirely disappear. 5. The excretion of ammonia begins to fall, but lags, so to speak, behind the diminishing excretion of acid, so that the ratio of free acid to ammonia is still further altered. 6. Excretion of amino-acid, creatinine, and uric acid gradually falls.

For comparison the urinary findings in a case of true anaphylactic shock are submitted. (Table IV.)

Case 10, a patient with ulcerative colitis, was one of simple anaphylactic shock which developed as the anti-dysenteric serum was actually being injected into a vein. The patient became collapsed and unconscious and there was incontinence of urine and fæces. Adrenalin was injected and consciousness rapidly returned.

The figures should be compared with those submitted in cases of allergic manifestations, such as asthma and urticaria,

* Part I. appeared last week.

Table IV. (Case 10).—*Anaphylactic Shock following the Administration of Antidysenteric Serum.*

Shock with involuntary micturition commenced 3.30 P.M., July 19th. Complete anuria till 10 P.M.

Date.	Time.	Free acid.*	Ammonia.	Ratio of free acid to A.-c. A.	Chloride.	Phosphate.	Urea.	Creatinine.	Albumin.	Urates deposit.	Ether reactions.	Vol.	Vol. per hour.
		mg.*		mg.*	g.*	g.*	mg.*				c.cm.	c.cm.
July 19 ..	10 P.M.	34	129·2	1 : 2·2	200	0·15	3·0	286	+ +	+ +	+ + + +	30	5·0
	Midnight	36	122·4	1 : 2·0	220	—	2·9	286	+ +	−	+ + +	15	7·5
July 20 ..	2 A.M.	54	122·4	1 : 1·3	180	0·275	2·7	250	+	−	+ + +	75	37·5
	5 A.M.	82	136·0	1 : 1·0	130	0·485	2·7	222	Nil	−	+ + +	150	50·0
	8 A.M.	78	136·0	1 : 1·0	100	0·475	2·9	222	„	−	+ + +	120	40·0
Total ..	.. ..	281·8	517·0	1 : 1	543·0	1·548	10·75	909				390	
July 20 ..	7 P.M.	6	30·6	1 : 3·0	60	0·09	1·3	77	Nil	−	+	180	—
	8 P.M.	4	27·0	1 : 4·0	50	0·075	1·2	70	„	−	+	180	180·0
	10 P.M.	4	27·0	1 : 4·0	70	0·07	1·0	70	„	−	+	210	105·0
	11 P.M.	2	23·8	1 : 3·5	65	0·055	0·088	58	„	−	+	150	150·0
July 21 ..	6 A.M.	34	102·0	1 : 1·8	120	—	2·0	286	„	−	+ +	45	6·4
	8 A.M.	22	78·2	1 : 2·0	130	0·14	1·9	166	„	−	+	150	75·0
Total ..	.. ..	77·7	359·0	1 : 2·7	636·0	0·726	11·72	946				915	

* Per 100 c.cm. A.-c. A. = Ammonia-combined acid.

and reference should be made to the tabulated cycle of events that have been found to occur during and after the allergic paroxysm.

It will be noted that :—

1. The first specimen of urine collected after the shock deposited urates.

2. The first three specimens of urine contained albumin ; albuminuria has been shown by Freeman to occur in hay-fever subjects after intravenous or subcutaneous injections of pollen extract, and by Rackemann, Longcope, and Peters in serum sickness.

3. The ether reaction was very strongly positive in all the urines of the first 12 hours following the shock and diminished gradually. (It had disappeared by the end of the third day.)

4. During the first 12 hours the free acidity rose very markedly ; it then fell, but the ammonia excretion remained relatively high, thus disturbing the normal acid-ammonia ratio. The total free acidity for the first period of 12 hours was 281·8 ; that for the second period only 77·7.

5. The chloride excretion was low throughout, particularly on the evening of the second day. (It began to rise again on the evening of the third day.)

6. The creatinine excretion was high.

7. After an initial period of anuria the urinary excretion was very small, a highly acid, concentrated urine being passed ; by the evening of the second day the post-paroxysmal diuresis had become established, and a large quantity of dilute urine of low acidity was excreted.

The Precipitation of Urates.

The precipitation of urates in the urine on cooling is a phenomenon that has not in our opinion received sufficient attention from clinicians. It is usually taught that such precipitation, when the urine cools, depends on (1) the concentration, (2) the acidity. As a matter of fact these are of relatively minor importance. We have seen a heavy deposit of urates in a urine with quite low free acidity and a specific gravity of 1012. As has been shown by Lichtwitz[41] and others, the solubility of uric acid and its salts depend upon the colloid state of the urine. The concentration is of subsidiary importance, for precipitation may occur with quite normal amounts, while abnormal amounts may remain in solution. Other conditions being the same, a sediment therefore occurs more readily in concentrated urine. The hydrogen-ion concentration is of significance merely in that precipitation only occurs in acid urines. *The dominant factor for the solubility is the state of the urine colloids* (Rosenbloom).

Since the precipitation of urates does not depend on the uric acid itself, such precipitation does not in any way indicate the "uric acid diathesis." Brugsch and Schittenhelm[42] have pointed out that whereas true gout is extremely rare in childhood, uric acid stone is most frequent, and the majority of cases of urate stone diathesis occur without true gout.

Now, although the precipitation of urates may be found in the urines of apparently normal healthy people, it is, in our experience, comparatively rare, and we believe that it is an indication, even in persons organically sound, at any rate of a temporary functional metabolic disturbance. One of us (H. W. B.) makes a rule to examine an early morning specimen of urine from nearly every patient he sees in private practice, and he finds that urates are more commonly deposited in the night or early morning urine than at other times ; nevertheless, except in patients with allergic symptoms, it is rare to see a specimen with uratic sediment. Even in patients with acute seborrhœic manifestations, in whom the urine is usually excessively acid, such a sediment is very uncommon. On the other hand, it is seen in patients with cirrhosis of the liver, heart failure with hepatic degeneration, and in acute infections such as pneumonia. In allergic diseases it is so frequent as to be almost constant at some period in the 24 hours, at least during the phase of active manifestations. In infantile eczema, urticaria, and the asthma-prurigo syndrome, for example, a reddish sediment is almost invariably noticed in the urine on cooling from time to time. It seems, therefore, that in allergic diseases there is an alteration in the colloidal state of the urine which predisposes to the deposition of urates.

The Ether Reaction.

This reaction was first observed by one of us (G. H. O.) in cases of cardiac failure with œdema. The test is performed as follows :—

> To a few c.cm. of urine are added first a little of a 25 per cent. solution of sulphuric acid and then sufficient ether to form a layer above the urine about half an inch in depth. The mixture is then thoroughly shaken with the thumb over the mouth of the test-tube and allowed to stand. The layer of ether becomes frothy, but, if the reaction be positive, the froth in its lower part becomes viscous and opaque, like melted wax, after ten minutes or so. In strongly positive tests the tube of urine can then be inverted without spilling. The degree of positiveness is measured by the depth and density of the waxy scum beneath the superficial froth, and we would here emphasise that the test is one of degree only, because a slight reaction—i.e., the formation of a narrow band of opaque scum—is frequently found in apparently normal people. For this reason we do not wish to exaggerate the importance of the reaction ; nevertheless it is one of great interest and deserves further study.

As far as our observations go, the reaction is always strongly positive during the acute phase of allergic manifestations but may disappear during the period of quiescence. We have, for example, found it very marked after anaphylactic shock and during the acute eruptive stages of urticaria and urticaria papulosa, though sometimes practically absent between the outbreaks. In migraine—and Dr. Moreland McCrea has confirmed this—it is positive during the attacks but may be negative at other times. In infantile eczema and the asthma-prurigo syndrome it may be well marked in practically every specimen of urine examined, but it is always most intense during the paroxysms of itching. It was strongly positive in the case of anaphylactic shock referred to above. We have also found it in hepatic disease, in acute febrile infections such as pneumonia, and in certain cases of active tuberculosis, and we have also seen it strongly positive in some cases of acute toxic eruptions from food poisoning and in generalised eczema due apparently to sensitisation to external irritants. It seems likely that there is a connexion between this reaction and the deposition of urates, both being probably dependent on an alteration in the colloid state of the urine.

If urine which gives a strong ether reaction is treated with a large excess of alcohol, a precipitate is obtained which is soluble in water. On shaking the aqueous solution with a third of its volume of ether a reaction apparently identical with the original ether reaction is given, suggesting that the latter is due to the presence in the urine of the substance precipitated from it by alcohol. The aqueous solution of this substance gives : (1) a positive xanthoproteic test ; (2) a positive Millon's test ; and (3) a negative biuret test.

It will be remembered that coagulable albumin was found in the urine of the case of anaphylactic shock ; it was also present in a case of multiple scalds, and is sometimes found during acute paroxysms of hay-fever, in serum sickness, and in severe urticaria. Albuminuria, however, is rare in chronic allergic conditions, nor does the urine give a precipitate on half saturation with ammonium sulphate. It is probable, therefore, that the substance which appears to be responsible for the ether reaction is a deutero-proteose, the exact nature of which is being investigated.

Urinary Acidity and Concentration.

The acidity of the urine varies according to the particular phase of the "allergic cycle." In the period preceding an attack the free acidity is, if anything, raised, but the acidity falls as the attack proceeds and diminishes, and the urine tends to become neutral and sometimes strongly alkaline with a deposit of phosphates. During the acid stage the urine is usually concentrated, and very commonly deposits urates on cooling, although uratic deposits may occur in urines of only moderate acidity and comparatively low specific gravity. During the alkaline stage it is dilute ; a diuresis after asthmatic attacks, for example,

has long been noted clinically. A patient may, in fact, during the same period of 24 hours at one time pass a strongly acid concentrated urine with a deposit of urates, and at another a highly dilute urine with a deposit of phosphates. Moreover, in several of our cases the deposition of urates has occurred, and the free acidity has been highest in afternoon specimens, whereas the early morning specimen has been dilute and alkaline.

Ammonia Excretion.

The ammonia excretion is one of the most remarkable features of the allergic state because it does not correspond with the degree of acidity. The normal ratio between the free acid and the ammonia-combined acid excretion varies according to Davis and Rixon[43] from 1 : 0·6 to 1 : 1·5, 1 : 1 being probably the normal average according to our own investigations. For the sake of comparison the figures obtained by one of us (G. H. O.)[44] in specimens of urine collected hourly from a normal person are reproduced. (Table V.)

TABLE V.

Time.	Free acid.*	A.-c. A.	pH.	Ratio.	Time.	Free acid.*	A.-c. A.	pH.	Ratio.
		mg.*					mg.*		
8 A.M.	68·0	88·4	4·6	1 : 0·8	4 P.M.	22·0	23·8	5·0	1 : 0·64
9 A.M.	40·0	68·0	5·0	1 : 1·0	5 P.M.	36·0	44·2	5·2	1 : 0·8
10 A.M.	20·0	34·0	4·8	1 : 1·0	6 P.M.	26·0	25·0	5·3	1 : 0·74
11 A.M.	14·0	17·0	5·0	1 : 1·0	7 P.M.	20·0	23·8	5·5	1 : 0·7
12 noon	16·0	17·0	5·2	1 : 0·6	8 P.M.	36·0	23·8	5·3	1 : 0·4
1 P.M.	18·0	17·0	6·6	1 : 0·55	9 P.M.	40·0	23·8	5·0	1 : 0·35
2 P.M.	16·0	17·0	5·2	1 : 0·6	10 P.M.	44·0	50·0	5·3	1 : 0·5
3 P.M.	16·0	20·4	5·2	1 : 0·75	11 P.M.	72·0	70·0	4·9	1 : 0·55

* Per 100 c.cm. A.-c. A. = ammonia-combined acid.

It will be seen that normally the highest excretion of free acid and of ammonia-combined acid takes place in the early morning and evening, the so-called alkaline tide following meals. The ratio of free acid to combined acid was never greater than 1 : 1, and usually less. In persons with allergic symptoms the ammonia excretion is raised, often to an extraordinary extent, and the ratio is found to be abnormal at the period of and following the paroxysm. For example, a lady with asthma and lichenified eczema of the hands gave the figures shown in Table VI.

TABLE VI.

Time.	Free acid.	Ammonia.	Ratio.	Vol.	Vol. per hr.
				c.cm.	c.cm.
4.15 P.M.	38·4	81·6	1 : 1·5	120	—
8.0 P.M.	50·4	138·0	1 : 1·6	180	45
2.0 A.M.	29·4	134·0	1 : 3·0	210	35
5.0 A.M.	14·4	98·0	1 : 4·0	180	60
6.30 A.M.	8·0	95·0	1 : 7·0	150	100
7.0 A.M.	−8	34·0	—	210	420
Total	132·6	580·6	1 : 2·6	1050	—

The asthmatic attack was nocturnal, and in the latter half of the night the free acid progressively diminished until 7 A.M. when the urine was alkaline, whereas the ammonia excretion lagged behind and at 6.30 A.M. a ratio of 1 : 7·0 was obtained. The diuresis accompanying the alkaline stage is well shown.

CASE 11.—A boy of 18 with asthma and prurigo. (Table VII.)

CASE 12.—Angeioneurotic œdema. (Table VIII.)

In Case 12 the attack of angeioneurotic œdema was already present when the investigations were begun, and adrenalin was administered after the first specimen of urine was examined. The figures show the very marked diuresis and the diminution of acidity with ultimate alkalinity, although the ammonia excretion remains high. Moreover, this progression towards the alkaline side is common to both asthma and angeioneurotic œdema and cannot be explained merely by the hyperpnœa that occurs in asthma. This alteration in the acid-ammonia ratio is described by Davis and Rixon as occurring in cyclical vomiting, a condition that we regard as belonging to the allergic syndrome.

TABLE VII. (Case 11).

Day of No Attack.

Time.	Free acid.	Ammonia.	Ratio.	Vol.	Vol. per hr.
				c.cm.	c.cm.
11.20 A.M. ..	24·0	91·8	1 : 2	150	—
5.15 P.M.	45·0	122·4	1 : 1·6	150	25
7.10 P.M.	23·0	67·3	1 : 1·8	90	45
5.45 A.M.	144·0	346·0	1 : 1·4	600	60
Total	236·0	627·5	1 : 1·5	990	—

Day of Attack.

1.20 P.M.	16·0	122·4	1 : 4·5	90	—
4.10 P.M.	7·0	65·0	1 : 5·4	90	30
7.0 P.M.	12·0	38·0	1 : 2·0	90	30
4.30 A.M.	79·2	314·0	1 : 3·0	660	69
9.15 A.M.	27·0	128·0	1 : 2·8	270	54
Total	141·0	667·0	1 : 2·7	1200	—

TABLE VIII. (Case 12).

Time.	Free acid.	Ammonia.	Ratio.	Vol.	Vol. per hr.
				c.cm.	c.cm.
7.0 P.M.	52·8	157	1 : 1·7	330	—
8 P.M. : Adrenalin.					
6.0 A.M.	115·2	440	1 : 2·3	720	65
10.45 A.M. ..	Neutral	146	—	330	66
1.45 P.M.	"	34	—	90	30
4.0 P.M.	−26·4	67	—	660	330
Total	142	884	1 : 3·6	2130	—

Urea, Creatinine, Uric Acid, and Chlorides.

The ammonia excretion, therefore, is raised in association with the paroxysms, and the other non-protein nitrogenous substances—viz., creatinine and uric acid—are also increased.

The diminution of the chloride content of the whole blood has already been noted. Examination of specimens of urine taken from a patient with active allergic symptoms at different times during the 24 hours has shown repeatedly that during the active stage there is retention of chlorides with a consequent low excretion of them in the urine, whereas after the paroxysms the excretion rises. This chloride retention has been shown to occur by Rackemann, Longcope, and Peters in serum sickness, and by Longcope and Rackemann in cases of urticaria. It is a well-known phenomenon in pneumonia and in other acute infections, such as scarlatina and typhoid fever. Kartamischew[45] and Urbach[46] have also emphasised its occurrence in pemphigus vulgaris and dermatitis herpetiformis. At the time of the post-paroxysmal rise in chloride excretion an estimation of the blood chloride may show higher figures than normal. This is illustrated in Case 13 (Table IX.).

CASE 13.—Spasmodic rhinorrhœa.

TABLE IX.—*Urine.*

Time.	Vol.	Free acid.*	A.-c. A.	Urea.	Cl.†	Ratio.
	c.cm.		mg.*	g. per c.cm.		
8 A.M. ..	240	34	129·2	3·2	2·8	1 : 2·2
11.20 A.M.	105	8	95·2	2·3	3·3	1 : 7·0
3.30 P.M.	450	Neutral	27·2	1·0	4·0	—
5 P.M. ..	210	−10	13·6	1·0	2·8	—
10 P.M. ..	240	20	68·0	1·2	3·4	1 : 2·0

* Per 100 c.cm. † Mg. per c.cm.

Blood.

	mg. per 100 c.cm.
Amino-acid	7·0
Serum chloride as NaCl	693
Whole blood chloride as NaCl	561

The specimen of blood was drawn at about 11.30 A.M., at the time of the high post-paroxysmal excretion of chloride. After the paroxysm the chloride that has been retained in the tissues presumably passes again into the blood (the chloride content of which is therefore raised) and is then excreted by the kidneys.

We have found complete absence of chlorides in the urine in (1) anaphylactic shock following an injection of pituitary extract which contained protein, (2) serum-sickness, and (3) cyclical vomiting; and marked diminution of the chloride excretion in migraine during the attack. In all probability it is a protective mechanism; the experiment of Richet and others on the prevention of anaphylactic shock in animals by the injection of sodium chloride support this view.

Retention of Chlorides Preceding and During Attack.

CASE 14.—Angeioneurotic œdema; urticaria; egg-sensitiveness (Table X.).

TABLE X.

Time.	Free acid.	Vol.	NH_3.	Cl.†	Urea.	Ratio.
		c.cm.			g. per c.cm.	
9.0 A.M. ..	−9·7	50	31·6	3·6	2·1	—
1.0 P.M. ..	−0·3	100	31·6	4·8	1·4	—
8.15 P.M. ..	22	100	68·0	5·0	3·1	1 : 2
10.30 P.M.* ..	98	30	153·0	3·0	3·6	1 : 1
7.45 A.M.* ..	68	100	129·0	0·9	3·1	1 : 1
8.30 A.M.* ..	66	70	125·8	0·9	3·1	1 : 1

* Urates deposited. † Mg. per c.cm.

In this case the first specimens were collected in the post-paroxysmal stage within 24 hours of the attack. In spite of the alkalinity of the urine there was a considerable excretion of ammonia. (The specimens were examined within a few minutes of being passed.) The chloride excretion was gradually rising. The later specimens were collected in the pre-paroxysmal stage, another attack occurring during the second day. It will be noted: (1) that these specimens deposited *urates*, (2) that the free acidity is high with a correspondingly high ammonia excretion, and (3) that the chloride excretion rapidly falls. The urea excretion is low—the patient being on a normal full diet—13·35 g. for the 24 hours, the normal figure being about 30 g. on an average diet.

The van den Bergh Reaction.

Recently one of us (G. H. O.) has sought for further evidence of disturbance of hepatic function by testing the van den Bergh reaction in our patients. The number of cases examined up to the present is too small for any definite conclusions to be drawn, but the results so far are probably of significance. (Table XI.)

TABLE XI.

	D.D.	I.	N.
1. Boy. Hay-fever. Formerly infantile eczema and prurigo	+	+	−
2. Boy. Prurigo localised to the hands and wrists. Formerly cyclical vomiting ..	+	+	−
3. Girl. Prurigo of Besnier type. Asthma and hay-fever	+	+	−
4. Man. Severe asthma and Besnier's prurigo	+	+	−
5. Woman. Besnier's prurigo. Asthma ..	+	+	−
6. Girl. Besnier's prurigo. Asthma	+	+	−
7. Boy, aged 9. Hebra's prurigo	−	+	−
8. Girl, aged 11. Hebra's prurigo	+	+	−
9. Man. Light-sensitisation of adult type ..	+	+	−
10. Woman. Ditto	+	+	−
11. Woman. Angeioneurotic œdema	+	+	−
12. Man. Urticaria following salvarsan injections	+	+	−
13. Man. Asthma of recent origin (quiescent stage)	−	−	+
14. Girl. Asthma (quiescent stage)	−	−	+
15. Man. Eczema occurring for first time in adult life. Ichthyotic	−	−	+
16. Woman. Urticaria. Angeioneurotic œdema	+	+	−

D.D. = delayed direct. I. = indirect. N. = negative.

Cases 1 and 16 in the above series also gave a positive Fouchet test. When positive the van den Bergh reaction in these patients is of the biphasic type, corresponding to that found in the toxic, and not the obstructive form of jaundice.

A number of patients with clinical symptoms and signs of hepatic disease were investigated along the same lines. (Table XII.)

TABLE XII.

	—	Amino-acid content of blood.	Blood serum NaCl.	Whole blood NaCl.	van den Bergh. D.	van den Bergh. I.
		mg.*				
1	Cirrhosis	7·0	528	346	+	+
2	,, ...	5·2	511	380	+	+
3	,, ...	—	577	380	+	+
4	,, ...	—	570	396	+	+
5	Gumma of liver (treated with N.A.B.)	—	528	346	+	+
6	Jaundice after tonsillectomy	5·8	—	390	+	+
7	Gall-stones with jaundice	—	561	475	+	+
8	Infective cholangitis ..	—	525	411	+	+

* Per 100 c.cm. D. = direct. I. = indirect.

All these cases, except the patient with gall-stones, gave a low whole blood chloride figure. In two other cases, one of salvarsan intolerance and one of carcinoma of the head of the pancreas with jaundice, the following figures were found. (Table XIII.)

TABLE XIII.

—	Amino-acid content of blood.	Blood serum NaCl.	Whole blood NaCl.	van den Bergh. D.	van den Bergh. I.
	mg.*				
Salvarsan intolerance ..	7·7	594	429	+	+
Carcinoma of pancreas ..	—	503	462	+	+

* Per 100 c.cm.

TABLE XIV.—*Urine.*

	—	Acid.	NH_3.	Cl.	Urea.	Ratio.	Vol.
1	Cirrhosis	44	194	0·4	4·0	1 : 2·6	25 oz.
2	,, ...	30	159	0·4	3·5	1 : 3·2	30 oz.
3	,, ...	30	170	—	2·2	1 : 3·5	—
4	,, ...	42	112	—	3·25	1 : 2·6	400 c.cm.
5	,, ...	48	197	2·2	2·3	1 : 2·5	—
6	Jaundice after tonsillectomy ..	22	125	Nil	3·8	1 : 3·4	—
7	Infective cholangitis	8	78·2	1·2	1·0	1 : 5·7	—

1, 2, 4, = 24 hours specimen; 3, 5, 6, 7 = early morning specimen.

These figures show the same rise in the quantity of ammonia-combined acid excreted that we have found in allergic cases, with a similar alteration in the ratio between free acid and the ammonia-combined acid. There is also the same diminished chloride excretion.

It is interesting to compare the figures obtained (*a*) in a child with cyclical vomiting, and (*b*) in a case of severe scalds. Davis and Rixon have found the same alteration in the ratio in cases of cyclical vomiting. (Table XV.)

TABLE XV.

—	Free acid.	A.-c. A.	Cl.	Urea.	Ratio of free to comb. acid.	Vol.
Cyclical vomiting ..	6	71·4	0	1·7	1 : 7	15 oz.
Multiple scalds ..	18	224·4	0·05	1·62	1 : 7	—

In the latter case the urine contained albumin, uratic deposit with bile-salts, and biliverdin in large amounts. Here we see the same high excretion of ammonia-combined acid, the altered ratio and low chloride output; the involvement of the liver is shown by the excess of bile-salts and the bile-pigment in the urine.

The methods used in these investigations have been:—

For the Urine.

(*a*) Free acid; direct titration.

(*b*) Ammonia-combined acid: Folin's method, using formalin and potassium oxalate.

(*c*) Urea; hypobromite method.
(*d*) Chlorine: silver nitrate and potassium thiocyanate in the presence of pure nitric acid, using ferric ammonium sulphate as indicator.
(*e*) Uric acid: Folin's colorimetric method.
(*f*) Creatinine: Folin's picric acid method.
All the specimens examined were preserved with toluol from the time of passing.

For the Blood.

(*a*) Amino-acid: Folin's colorimetric method, using sodium beta-naphthoquinone-sulphonic acid as reagent.
(*b*) Chlorine as above.
(*c*) Uric acid: Folin's method.
(*d*) van den Bergh reaction: according to the original technique.
All these methods are described in Folin: "Laboratory Manual of Biological Chemistry," 1925; D. Appleton and Co., New York, with the exception of the van den Bergh reaction.

Principles of Treatment.

Our investigations have dealt with only one—the biochemical—side of the extremely complex problem of anaphylaxis and allergy, and by no means completely with that. We have been tempted to discuss the whole question, more particularly in connexion with the work of Dale and Laidlaw on histamine and histamine shock,[47] of Lewis and his co-workers,[4] and of Roger and Garnier, Draper, Whipple and his collaborators, Haden and Orr, Binet, and many others on experimental intestinal obstruction. (An admirable review of this last subject, with full bibliography and personal observations, has recently been published by Binet.[48]) Such a discussion, however, would be beyond the scope of this paper, and we will merely remark that the views on anaphylaxis, wound shock, and "protein sensitivity" tentatively put forward by Lewis,[49] and the biochemical investigations that have been made in cases of intestinal obstruction, more particularly by Haden and Orr,[39] may prove of great significance both in the elucidation of the exact nature of the allergic reaction and in its treatment.

In intestinal obstruction the most striking biochemical changes are the reduction of chloride in the blood—and, according to Haden and Orr, in the liver and to a lesser extent in the muscles—together with a lowered chloride excretion in the urine and later a rise in the non-protein nitrogen and of the bicarbonate in the blood. It is clear that the chloride is fixed somewhere, and Haden and Orr suggested, as Richet in his experiments on anaphylaxis had already done, that it combines with the toxin to form a non-toxic product according to the following formula:—

$$\underset{\text{Toxin}}{X} + NaCl + H_2Co_3 = XHCl + NaH\ Co_3.$$

The resulting alkalosis is thus clearly explained, and the hypothesis is confirmed by the remarkable results obtained both experimentally and clinically by the injection of hypertonic saline to combat the symptoms of toxæmia and prolong life in intestinal obstruction. Our investigations show that in the allergic cycle there is, at one period, the same reduction of chloride in the blood, the same chloride retention, as evidenced by a lowered or absent excretion in the urine, and the same rise in the non-protein nitrogen of the blood. Moreover, although in the initial stage of the cycle there is a rise in the free acidity and of the ammonia-combined acid, this is followed by an apparent alkalosis which is accompanied by a diuresis. Since injections of sodium chloride are specific in overcoming the toxic symptoms of intestinal obstruction (other chlorides are useless, and of the salts tested only sodium bromide appears to have a similar effect), and are also capable of preventing experimental anaphylactic shock, one might expect them to be of value in allergic conditions, but we have not as yet employed them.

The principles upon which our treatment has been based are as follows:—

1. Seeing that, apart from cases in which it obtains access to the tissues parenterally—e.g., in hay-fever—the antigen responsible for allergic conditions is absorbed from the alimentary tract, and presuming that either specific food proteins, the intermediate products of protein digestion, or toxic substances resulting from bacterial action on protein, are in question, we have instituted in many cases a more or less vegetarian dietary.

2. Believing that the high excretion of ammonia might be a protective mechanism, one of us (G. H. O.) administered considerable doses of sal volatile.

3. Since our investigations tend to confirm the views of those who hold that the liver plays an essential rôle in the drama of the anaphylactic reaction—as Roger has said, "the liver is the principal gland that intervenes in order to maintain or re-establish the chemical constitution of the organism"—we have sought to protect it both by a rational dietary and by prescribing additional glucose in order to increase the glycogen content of the liver cells.

4. To patients who show clinical evidence of exhaustion of the adrenal sympathetic system, as is usual in the chronic and severe cases of the asthma-prurigo group, we have given ephedrine hydrochloride.

We have purposely avoided employing the well-recognised methods of specific and non-specific desensitisation, and have seldom availed ourselves of the striking effect that real or artifcial heliotherapy produces on patients with allergic symptoms.

The above principles may now be considered in more detail, but it will be understood that the exact line of treatment in a given case must obviously depend on the nature of the predominant symptoms, on their acuteness or chronicity, and on any special features peculiar to the case.

Diet.

It is sometimes said that dietetic treatment is of no account in many of the conditions under discussion—e.g., infantile eczema, papular urticaria, and the prurigos. On the other hand, both Rasch and Haxthausen are emphatic concerning the value of a lacto-vegetarian régime in Besnier's prurigo. The former goes so far as to say that it is the only method of treatment that gives any permanent relief, and he has found it successful not only in mitigating the prurigo but also in preventing the accompanying asthmatic attacks. We believe that the clue to a rational diet lies in a consideration of the functions of the liver in dealing with proteins and their derivatives. It is known that the liver fixes albuminous substances in its parenchyma (the "protéopexie" of Widal, Abrami, and Ivanesco), and that, if this function be interfered with experimentally, symptoms of shock supervene. In dogs with an Eck's fistula feeding with meat produces a state described by Fr. Fischler[50] as "Fleischintoxikation," thus illustrating the important function of the liver in protecting the body against foreign proteins. Its power of transforming the products of protein digestion—albumoses, peptones, polypeptides, and amino-acids—into the non-toxic urea is normally more important still. Finally, the liver renders non-toxic the products of bacterial action on undigested protein and, as Roger has shown, is capable of destroying bacteria themselves.

Now in those cases in which the antigen is absorbed from the alimentary canal we recognise (1) a group in which there is well-defined specific food sensitiveness, and (2) a group in which this is not apparent. In the first group it is presumably the proteopexic function of the liver that is tested and, when allergic symptoms occur, fails. From the work of A. and M. Walzer[51] on urticaria it would appear that the offending food substance is absorbed unchanged or incompletely digested and, reaching sensitised tissue, produces a local response due to antibody-antigen interaction. Their experiments are based on the well-known Prausnitz reaction. By injection of an area of skin of a normal non-sensitive person with the serum of one known to be sensitive to a certain food substance, and then feeding him with the food in question, an urticarial wheal is produced at the site of injection of the sensitised serum. Their observations are supported by those of Lewis and Grant,[52] who experimented with a fish-sensitive person; but Lewis remarks that the active substance producing the

allergic response appears to be neither a coagulable protein nor histamine, and A. and M. Walzer observed that heating, baking, or canning the offending food protein, diminished, delayed, or prevented the response. This would suggest that the actual antigen is a specific substance that is fairly easily destroyed or changed. Moreover, A. and M. Walzer found that, whereas hyperchlorhydria tends to retard or prevent the reaction, achlorhydria tends to accelerate it, indicating that this specific substance is destroyed early in normal gastric digestion. We believe that the secretion of hydrochloric acid by the stomach may be an important factor in allergy of alimentary origin. We have not done fractional test-meals in a sufficient number of cases of the asthma-prurigo group or in cases of chronic urticaria to be able to state whether hypo- or a-chlorhydria are usual, but in light sensitisation of the adult type Howitt and one of us (H. W. B.) found very marked hypochlorhydria or complete achylia in 80 per cent. of cases.[53]

To sum up: in cases of allergy due to specific food sensitiveness it would appear that the protein in question, with the specific substance producing the allergic reaction, may be absorbed unchanged into the blood stream. This is more likely to occur if the food is taken in its natural state, if the secretion of hydrochloric acid in the stomach is deficient, and if the proteopexic function of the liver fails.

In the second group, in which no specific food sensitiveness can be determined but in which the alimentary tract is clearly the source of the toxin responsible for the allergic symptoms, it is probable that incompletely digested protein-cleavage products derived from various food proteins, and bacterial toxins or the products of bacterial action on proteins, are absorbed, escape destruction in the liver, and produce the symptoms. In this case it is the detoxicating function of the liver that fails.

From these considerations it is clear that diet is of great importance but, apart from cases of specific food idiosyncrasies, it is probably not so much a question of the actual foods taken as of the capacity of the digestive organs and of the liver to deal with them. Hence a person who is compelled by experience to diet himself strictly under sedentary and trying conditions may often eat and drink with impunity when leading an outdoor and care-free life. The essential clue to the problem lies in the functions of the digestive organs and of the liver. We do not believe that there is any particular virtue in the lacto-vegetarian diet per se. In fact, the influence of cow's milk is sometimes definitely harmful, particularly in cases of infantile eczema, many of which improve promptly when cow's milk is excluded, and in older children with asthma and Besnier's prurigo, who are often given large quantities of cow's milk "to fatten them" in addition to a fully adequate mixed diet. The success of a lacto-vegetarian régime is, we are convinced, due to the reduction and simplification of the protein intake. What is important to realise is that the asthma-prurigo group of patients, with their highly developed and supersensitive nervous systems, are metabolically very unstable, and their ability to digest and metabolise proteins is limited. But their restlessness, both of mind and body, tends to rapid exhaustion, which is apt to precipitate the paroxysms of asthma or itching, and to induce the ketosis that characterises cyclical vomiting.

The rules of diet that we prescribe are similar to those advocated in cases of hepatic insufficiency, with such modifications that the nature and severity of the symptoms and the idiosyncrasies of the individual patient may require—viz., restriction of or abstention from meat and fish, and sometimes from eggs; an abundance and a variety of cooked and raw vegetables and fruit, the cellulose of which is of such importance; farinaceous foods, preferably in a form that compels mastication; cheese; fresh butter; glucose in preference to cane sugar. Meat and fish, when allowed, should be freshly and plainly cooked without fat (other than butter) or rich sauces. In addition we have convinced ourselves of the value of sour milk with lactose in certain cases, particularly of light sensitisation and of dermatitis herpetiformis. Our most striking successes with this kind of dietary have been obtained in Besnier's prurigo, certain forms of eczema and prurigo in adults, light sensitisation, and dermatitis herpetiformis. Unfortunately the limitations of English cooking render such a régime unnecessarily difficult to enjoin and irksome to follow.

Ammonia.

One of the most striking features of the allergic cycle is the increased excretion of ammonia, whereby the ratio of free acid to ammonia-combined acid is altered. We are doubtful whether or not the high ammonia excretion is called forth merely in response to an acidosis. It occurred to one of us (G. H. O.) to try the therapeutic effect of administering ammonia in the form of sal volatile by the mouth. During the past nine months a large number of patients have been treated in this way, with 30 minims to 2 drachms of spiritus ammoniæ aromaticus, according to age, in a tumbler of water thrice daily before meals. At one time we prescribed it in a mixture with sodium sulphate, potassium bicarbonate, sodium phosphate, and sodium chloride, but we think it is more efficacious if given alone, freshly mixed with water. We have never seen any ill-effects from its use, except that a few patients have complained that it gave them indigestion. It is probable, in fact, that larger doses could be tolerated and, perhaps, would be more effectual. It should be taken, according to our experience, about half an hour before meals, and perhaps at bedtime.

It is difficult to estimate the value of sal volatile alone in the treatment of allergic symptoms, but our impressions are as follows:—

1. That in hay-fever, migraine, and urticaria its action may be very striking, both in preventing and aborting the attacks. In over a dozen cases of hay-fever it has appeared to be almost specific. Dr. Moreland McCrea has kindly tried it in cases of migraine with very successful results. In urticaria the effect seems to vary; some patients have done well, but in others it has proved disappointing.

2. In patients belonging to the asthma-prurigo group its immediate effect is less obvious but, given regularly over a long period of time, in combination with suitable dietetic treatment, it has seemed of definite benefit. The same may be said of cases of light sensitisation of the adult type.

We have not treated enough cases of asthma, uncomplicated by prurigo, to express any opinion as to its efficacy.

Glucose.

The value of glucose, with or without the simultaneous administration of insulin, in the treatment of various conditions is becoming more and more apparent; the literature concerning its uses is already formidable and cannot be reviewed here. Its cardinal virtue is, we believe, that it affords the simplest and most rapid method of increasing the glycogen content of the liver. Roger[54] and Fiessenger and Walter[27] have insisted that the glycogenic function is of paramount importance in the physiology of the liver. As Fiessenger and Walter point out, glycogen is essential (1) for the antitoxic function, since it allows of glycuronoconjugation and of destruction of bacteria, which does not occur if the liver has been deprived of its glycogen by fasting; (2) for the protein function, since the destruction of amino-acids, of beta-oxybutyric acid, and of acetone bodies only takes place in the presence of glycogen; (3) for the lipopexic function; and (4) for the pigmentary function.

If, therefore, we ascribe to the liver a preponderating rôle in the defensive mechanisms of the body, it is clear that one of the chief therapeutic indications in hepatic disease and in allergic and allied conditions is to ensure an adequate supply of sugar, in order to increase the glycogen content of the liver cells. For this purpose feeding with glucose or, in cases of urgency, its administration by the intravenous and rectal routes, is the method of choice.

We have found it of especial value (*a*) in children belonging to the asthma-prurigo group, most of whom portray to perfection the characteristics of "the nervous child" so graphically described by Cameron,[55] who himself has long advocated its use; (*b*) in the thin hypotonic adult patient—usually female—in whom simple prurigo is so common a symptom; under-nutrition is here an important factor, and for it Izod Bennett[56] has rightly described glucose as "the most valuable fluid food available"; (*c*) in patients in whom there is unmistakable evidence of chronic hepatic insufficiency. We have also given it with striking success, usually in combination with sal volatile or sodium bicarbonate, in the prurigo of pregnancy, and as a preventive of the toxic effects of deep X ray therapy and of metallic drugs, such as salvarsan and sanocrysin.

Dodds[57] has shown that even 500 g. of glucose does not produce glycosuria in the majority of normal men, and Izod Bennett advises as much as 1 lb. per diem in severe cases of under-nutrition. We usually prescribe from 2 to 4 ounces daily in divided doses, both with and between meals.

SUMMARY AND CONCLUSIONS.

The points we would emphasise in the foregoing account of some of our investigations into the metabolism of allergic conditions are as follows:—

1. Certain phenomena have been demonstrated to occur with remarkable constancy in various manifestations of the allergic state; some of these have already been described by others in experimental anaphylaxis and in serum sickness, which is generally admitted to be truly anaphylactic in origin.

2. In the allergic state, whether it be intermittent, as in certain cases of urticaria, angeioneurotic œdema, asthma, or hay-fever, or whether it be more or less chronic with periodical exacerbations and remissions, as in Besnier's prurigo and infantile eczema, there can be recognised a definite cycle of events corresponding to the pre-paroxysmal stage, the actual paroxysm, and the post-paroxysmal stage. In this cycle the most striking features are: (*a*) The rise in the amino-acid content of the blood. (*b*) The fall in the chloride content, particularly of the corpuscles, due presumably to the chloride being taken up by the tissues. (*c*) The retention of chloride, so that its excretion is diminished or absent in the urine during the paroxysms, and its subsequent excretion in increased amount after the paroxysms, at which time the chloride content of the blood may also be raised. (*d*) The rise in the urinary excretion of ammonia, so that the ratio of free acid to ammonia-combined acid is altered, often very strikingly. (*e*) The deposition of urates in the urine in the pre-paroxysmal or paroxysmal stage. (*f*) The intensity of the ether reaction during the periods of active symptoms. (*g*) The diuresis, with decreasing acidity and sometimes marked alkalinity of the urine, in the post-paroxysmal stage.

3. The positive van den Bergh reaction of the biphasic type in a large proportion of the cases so far examined.

4. The similarity of the findings in a case of anaphylactic shock, in a case of multiple scalds, and in patients with definite hepatic disease.

It is possible that the raised amino-acid content of the blood in these cases results partly from: (*a*) the increased endogenous katabolism that occurs in anaphylactic and allergic reactions, as shown by the increased formation of creatinine; (*b*) from the relative temporary hepatic insufficiency caused by the damage to the liver cells, as evidenced by the positive van den Bergh test; (*c*) from the interaction of the antigen and the "defence-ferments" of Abderhalden[58] whereby amino-acids are formed. In any case, the positive van den Bergh reaction, the raised amino-acid content of the blood, and probably the increased ammonia excretion, the precipitation of urates, and the ether reaction in the urine, are indicative of a disturbance of hepatic function. It is likely that the increased ammonia excretion and the temporary retention of chlorides are protective mechanisms. A dietary based on our interpretation of these findings, and the internal administration of ammonia and glucose, have proved of definite therapeutic value in many allergic cases.

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ULTRA-VIOLET LIGHT AND SKIN CANCER.

BY G. M. FINDLAY, O.B.E., M.D., SC.D.EDIN.

(From the Laboratories of the Imperial Cancer Research Fund, London.)

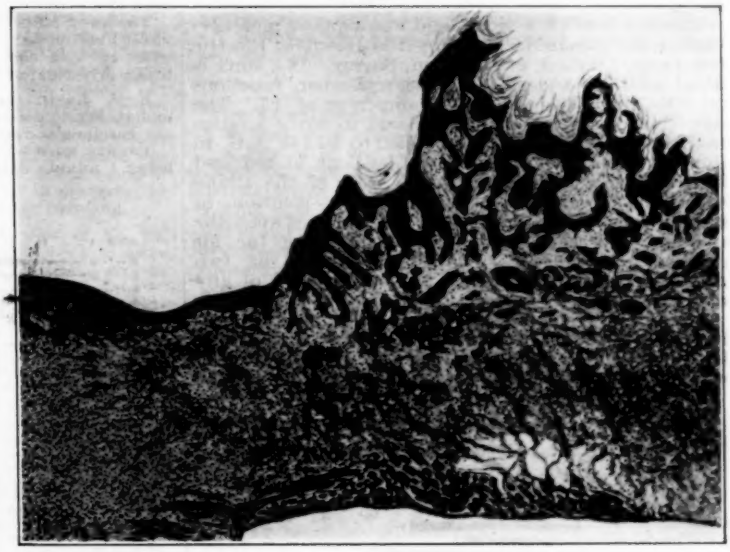
IT has long been known that prolonged exposure to the weather may produce in the exposed skin changes which not infrequently terminate in cancer. These changes were first described by Unna (1896) under the name "Seemanshaut," since the condition is especially common in sailors. Similar changes often associated with atrophy are, however, by no means rare in the skin of old country people, one of the commonest sites for the lesions being, as Lenthal Cheatle (1908–09) has pointed out, the skin over the posterior surface of the second metacarpal bone, an area which is also the commonest site for the development of cancer of the skin of the hand. In all countries where a white population is exposed to prolonged sunlight, keratotic changes in the skin are far from rare and in association with these keratoses, cancer of the skin not infrequently develops. In this country, according to Young and Russell (1926), fishermen, bargemen, and lightermen show an excess of facial cancer; agricultural labourers, farm servants, farmers and graziers, an excess of cancer of the hand. Among gardeners also, the amount of cancer of the hand is considerably in excess of what should be expected. The possibility that the sun's rays may play a part in this excessive production of skin cancer has not lacked supporters.

In France Dubreuilh (1907, 1915, 1920, 1925) in a number of publications has emphasised the ætiological importance of sunlight in keratosis and epithelioma of the skin, since these lesions, while rare in town-dwellers, are common in country folk. Bellini (1909) in Italy has reported similar findings.

In America Hyde (1906) points out that the coloured races suffer much less from skin cancer than the whites, among whom cancer of the face, neck, and hands is specially common in agricultural labourers. Corlett (1915) and McCoy (1920) also emphasise the importance of occupation and pigmentation in the genesis of skin cancer. In the latter's series of cases the distribution of cancer of the face, neck, and hands, according to the colour of the skin, showed that 62 per cent. occurred in blondes, 31 per cent. in chatains, that is, those with dark hair and little skin pigment, and 7 per cent. in the dark skinned.

In Australia Molesworth (1927) shows that rodent ulcer and epithelioma of the exposed portions of the skin are far more common than in this country. As in other countries with much sunlight, there is the same marked tendency for skin cancer to be common in the country and rare in the town. Rodent ulcer and epithelioma both develop in relation to pre-existing keratoses, more especially when the skin is poorly pigmented. Since those of Scottish and Irish descent have, as a rule, fair skins, the incidence of skin cancer of the face, hands, and neck is greater in these races than among the general population; while among Italians, on the other hand, skin cancer is very rarely seen. Quite recently Lawrence (1928) has suggested that in Australia the irritating action of the solar rays is accentuated by the relatively low humidity of the atmosphere. Among 20,000 patients with skin diseases seen in private practice there were 1374 rodent ulcers and 395 epitheliomata. Although the statistical value of these clinical observations may not be high, nevertheless the facts strongly suggest that sunlight, and more especially ultra-violet light, may play an important part in the genesis of skin cancer. Although no case of skin cancer due to the therapeutic use of ultra-violet light has yet been reported, Colquhoun (1927) has nevertheless recorded the production of multiple keratoses on the chest of a man, aged 27 years, who had received quartz light therapy for some eighteen months, while Cheatle (1925) has noted that in skin "bronzed" by therapeutic exposure to sunlight there is very active mitosis in the epithelial cells situated above the basal layer.

FIG. 2.

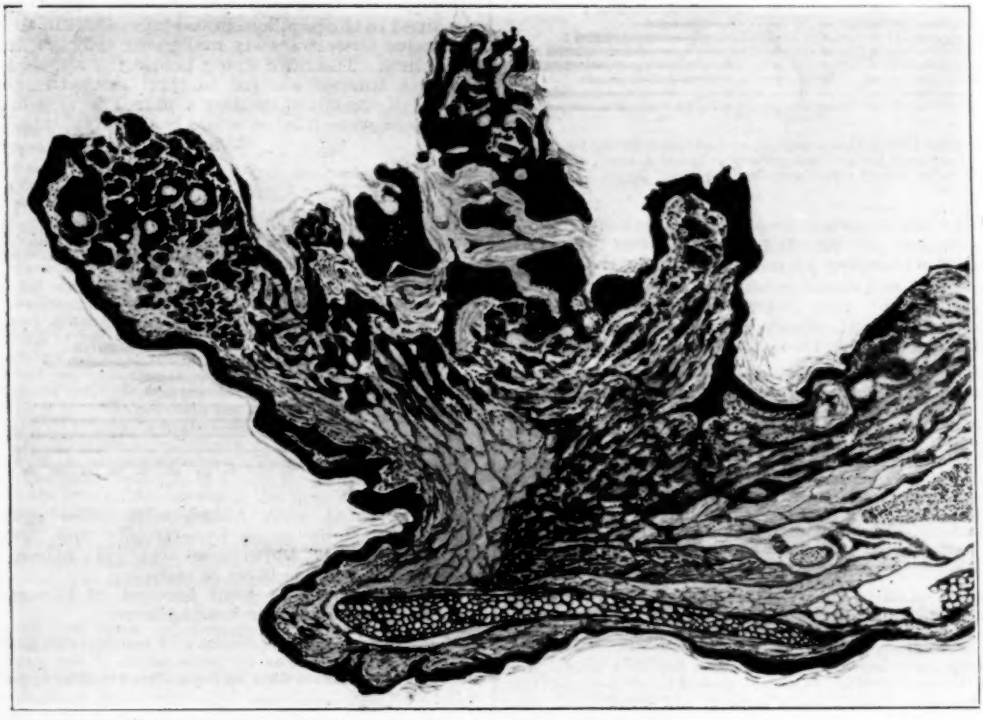


Tumour from the back of mouse No. 14 (× 20).

Experimental Procedure.

In order to determine experimentally whether ultra-violet light had any carcinogenic action on the

FIG. 1.



Tumour from ear of mouse No. 13 (× 20).

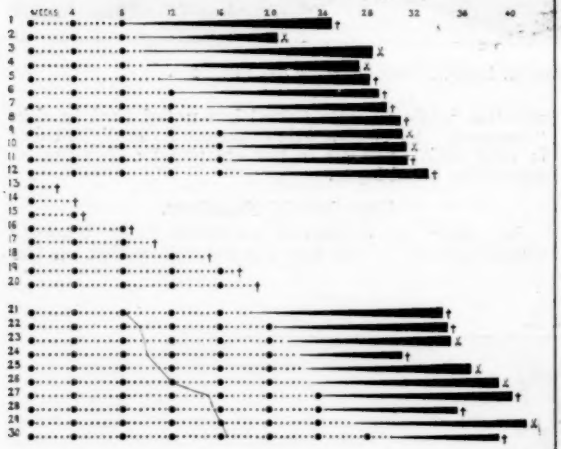
skin, a series of experiments were carried out on mice.

The source of ultra-violet light was a quartz mercury-vapour lamp manufactured by the Hewittic Electric Company, Limited, of Hersham, Surrey. The lamp is fitted with a standard Y 2 Ulviarc burner, functions on 200–300 volts, and has an amperage of 3·5. The spectrum of the mercury arc is said to cover a range from 2000 A.U. in the ultra-violet to 10,140 A.U. in the infra red; it is, however, deficient in red and infra-red rays. The mice, which were of the albino variety, were at first epilated with a solution of sodium sulphide on an area of the back between the shoulders, as is usually done in applying tar for carcinogenic purposes. After from one or two months exposure, there was no further need of any depilatory.

The mice were exposed to the light by placing them in a sanitary bin 15 in. in diameter, fitted with a false bottom of perforated zinc. The mercury-vapour lamp was placed on a wooden frame which fitted over the top of the bin in such a way that the rays of the lamp were directed downwards into the bin, the false bottom of which was 18 in. distant from the light.

Charts showing the Acceleration of the Carcinogenic Action of Tar by Exposure to Ultra-violet Light.

CHART 1.



1–20 = Mice tarred twice weekly and exposed te the mercury-vapour lamp for two minutes four times a week.
21–30 = Mice tarred twice weekly.

In the first two experiments, the effect of combining ultra-violet light with a known carcinogenic agent, such as tar, was investigated. In the last experiment the effect of ultra-violet light alone was studied.

Expt. 1.—Thirty albino mice were tarred twice a week over a small area of the back with a known carcinogenic tar. Ten of the mice served as controls. The other 20 mice were exposed for 2 minutes four times a week to the mercury-vapour lamp. The results are shown in Chart 1. In this and the succeeding chart, the applications of tar are represented by dots, the commencement and growth of the tumours by the solid cones. Death of the animal is shown by a †, operation by a pair of scissors. From Chart 1 it will be seen that cancer of the skin occurred more rapidly in those mice which were treated with tar and ultra-violet light than in those treated with tar alone.

Expt. 2.—Leitch (1922) showed that if tarring was continued for from four to five months and then stopped, certain mice developed carcinomata a considerable period after the cessation of the tarring.

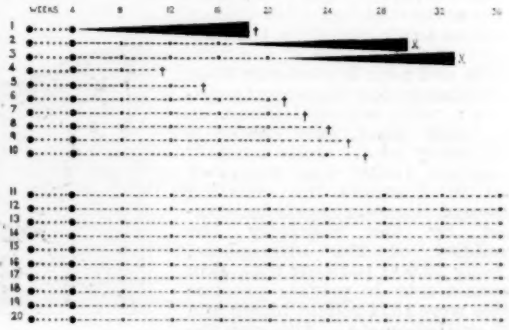
Twenty mice were tarred as before for four weeks, and during the same period ten were exposed to ultra-violet light for 2 minutes daily. Both tarring and irradiation were discontinued at the end of this period. In those mice which were tarred and irradiated, three tumours appeared, while in the mice which were only tarred no tumours developed. The three tumours which appeared in the irradiated group were of a definitely malignant character.

The question of whether the accelerating action of ultra-violet light on tar carcinogenesis is due entirely to a local effect or to a combined local and systemic action is now being investigated experimentally.

Expt. 3.—In view of these results, experiments were undertaken to determine whether ultra-violet light alone had any carcinogenic action.

Twenty mice were used in the experiment, the exposure being 1 minute daily. Five months later the exposure was

CHART 2.



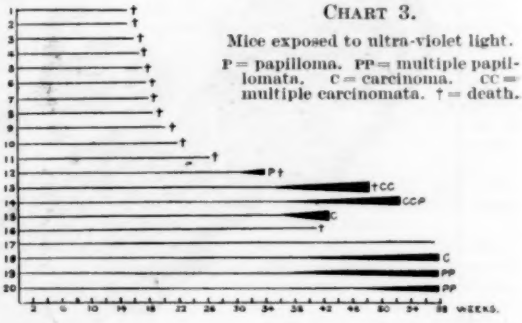
1–10 = Mice tarred twice weekly and exposed to the mercury-vapour lamp for one month.
11–20 = Mice tarred twice weekly for one month.

increased to 2 minutes daily and then after a further two months to 3 minutes, four times a week. In order to lessen the mortality, any mouse which showed a very severe reaction accompanied by ulceration escaped further exposure until the lesions showed signs of healing.

The general course of the experiment is seen in Chart 3. The first growth appeared in a mouse 217 days after the beginning of the experiment. At this time there were eight other mice alive, of which six subsequently developed tumours, two of these growths remained in the papillomatous stage, while in the other four mice there were six malignant growths and one papilloma. The mice dying before the appearance of the first tumour showed in their skins the changes typical of chronic solar dermatitis. The vessels of the cutis vera were dilated while the surrounding tissues

CHART 3.

Mice exposed to ultra-violet light.
P = papilloma. PP = multiple papillomata. C = carcinoma. CC = multiple carcinomata. † = death.



were infiltrated with round cells. The epidermis showed in some areas hypertrophy and irregular thickening with hyperkeratosis; in other areas reduction to a single layer of cells.

The following is a brief account of the growths occurring in the tumour-bearing mice.

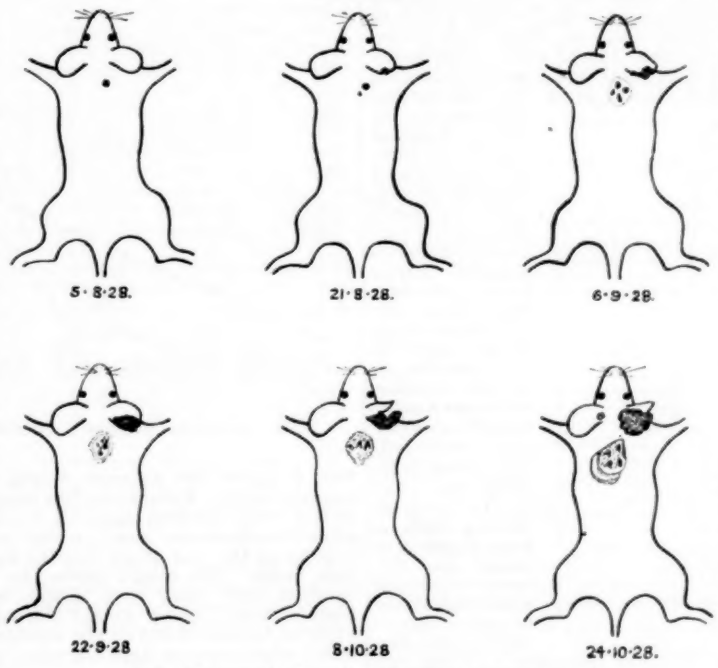
Mouse 12.—A small papilloma with considerable ulceration at the base; there was no penetration of the panniculus carnosus. The mouse died 18 days after the first appearance of the growth.

Mouse 13.—A small wart-like growth first appeared on the anterior aspect of the pinna of the right ear. This grew slowly, finally ulcerating through on to the posterior surface

of the ear. The structure of this tumour is seen in Fig. 1. Ten days after the appearance of the ear tumour a small papilloma was noted on the back; a second papilloma appeared a week later. These papillomata at first grew slowly; then after some six weeks the skin around the papillomata became thickened and a large horny growth resulted. The tumour was operated on and autoplasts made. Unfortunately, the tumour was infected and both autoplasts ulcerated out. At death, however, the left axillary gland was found to contain a metastasis. Histological examination of the tumour showed a cancroid very similar in character to those commonly produced in the mouse by tar painting.

Mouse 14 had a very similar history to that of No. 13. Three papillomata first appeared on the back; after progressing slowly for a time they took on active growth forming a large horny mass; in the meantime a warty growth had appeared on the anterior aspect of the right ear, gradually involving the whole of the pinna. Ten weeks after the first papilloma had been noted on the back a single small papilloma appeared on the dorsum of the pinna of the left ear. The growth on the back was operated on and autoplasted with subsequent growth. The tumour on the right ear had histologically the appearance of an epithelioma with keratinisation and cell nests. The superficial portion of the tumour on the back had a similar appearance, but the deeper portion had the characteristics of a small spindle-celled sarcoma. (Fig. 2.)

CHART 4.



The development of multiple tumours in mouse No. 14.

Mouse 15.—Three small papillomata first appeared on the skin of the back. The skin surrounding these growths rapidly thickened, forming a rounded firm mass about the size of a threepenny-piece. The tumour was removed at operation and two autoplasts made in the mouse. Both the autoplasts grew slowly. Six weeks after the operation the mouse was killed and one of the autoplasts was transferred to normal mice. Growth occurred in 1 in 20 of these mice. Histologically the original growth showed in the more superficial areas down-growth of epithelium with typical cell-nest formation and keratinisation. The deeper part of the tumour, however, had a more sarcomatous appearance, consisting of large spindle-shaped cells. It was possible, however, to distinguish all gradations of cell types from the typical epidermal cells of the cell nest to typical spindle cells. The question therefore arises as to whether this tumour is to be regarded as a carcinoma or a carcino-sarcoma. The same problem has arisen in the interpretation of many tar tumours. In the autoplasts the prevailing cell was of the large spindle-shaped type; keratinisation was absent.

Mouse 18.—A small papilloma first appeared on the anterior aspect of the pinna of the right ear. Subsequently the whole ear was involved, the cartilage of the ear being disorganised.

Mouse 19 had three papillomata on the back and one small one on the left ear.

Mouse 20 had two small papillomata on the back.

In neither of these animals was there evidence of penetration through the panniculus carnosus.

Of the seven tumour-bearing mice, therefore, three have developed papillomata, while four have had growths which are of a definitely malignant type. In two of these four mice the malignant growths have been multiple.

Discussion.

The experimental evidence thus brought forward shows that mice exposed to the mercury-vapour lamp for a period of not less than eight months develop either simple papillomata or malignant epitheliomata. Further, when a known carcinogenic agent is at work on the skin exposure to ultra-violet light for a comparatively short period may lead to the rapid development of malignant new growths. These experiments, therefore, are in favour of the hypothesis based on clinical evidence that in man exposure to ultra-violet light plays an important part in the ætiology of cancer of the skin of the face, neck, and hands.

Conclusions.

1. By exposure of mice to ultra-violet light for a period of not less than eight months it is possible to produce papillomata and malignant epitheliomata of the skin.

2. When mice are tarred and exposed to ultra-violet light at the same time, the period necessary for the induction of cancer is shorter than when either tar or ultra-violet light alone is employed.

3. A series of mice tarred for one month failed to develop cancer, but when tarred and exposed to ultra-violet light for the same period three mice developed malignant growths.

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BETHLEM HOSPITAL.—The annual report of Sir Lionel Faudel-Phillips, the treasurer of Bridewell and Bethlem Hospitals, states that the out-patient departments were closed at Michaelmas, 1927. The average weekly cost of maintaining patients was £4 17*s*. The new hospital buildings on the Monks Orchard Estate were begun in June, and good progress has been made. The appeal for the building fund has, so far, produced £45,000, but a further £50,000 will be needed if the new enterprise is to start free of debt.

TONSILLAR HYPERTROPHY AND INFECTION AS A FACTOR IN ILL-HEALTH.

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AND

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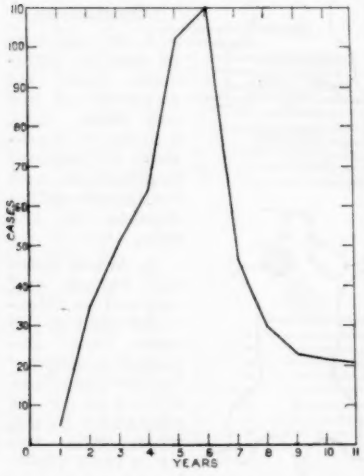
At the out-patient department of a children's hospital many cases are seen with hypertrophied or infected tonsils, and the following study was undertaken to ascertain to what extent these contributed towards the child's symptoms and general ill-health. Our 500 cases were chosen from the out-patient department at the Hospital for Sick Children, Great Ormond-street, and the Westminster Hospital. As far as possible only those cases who had been observed and their weight recorded for periods up to six months before and after tonsillectomy were included. Very great difficulty was experienced in getting such a large number of cases, as the vast majority ceased to attend hospital immediately after the child had recovered from the operation. Of the 500 cases, 412 were observed for at least four to eight months continuously.

Fig. 1.



Sex-incidence.—Of the 500 cases, 277 (55·4 per cent.) were males, and 223 (44·6 per cent.) were females. This preponderance of males over females was noticed all through the records investigated.

Age-incidence.—275 of the 500 cases were between four and six years of age at their first visit to the out-patient department. This suggests that at this age infected tonsils give rise to their maximum symptoms. The age-incidence is shown in Fig. 1.

Chief Complaint.—In this series of cases the chief complaints were as follows:—

1. Respiratory group (145)—	
Coughs, colds, catarrhs	129
Asthma	16
2. Alimentary group (104)—	
Anorexia	46
Vomiting	28
Abdominal pains	8
Bilious attacks	7
Indigestion	6
Constipation	3
Diarrhœa	2
Worms	2
Jaundice	1
Fœtor oris	1
3. Nervous group (90)—	
Nerves	74
Fits	4
Headaches	4
Restlessness	2
Stuttering	2
Habit-spasm	2
Listlessness	1
Night-terrors	1
4. Wasting group (70)—	
Wasting	49
Run down	11
Debility	10
5. Rheumatic group (43)—	
Rheumatism	27
Chorea	11
Carditis	5
6. Ear, nose, and throat group (30)—	
Sore throats	13
Earache	12
Otorrhœa	3
Deafness	2
7. Urinary group (18)—	
Enuresis	14
Hæmorrhagic nephritis	3
Pyuria	1

It was noticed that when the child was first brought to hospital the symptoms complained of in all but a few instances did not refer to the throat.

Effect of Tonsillectomy on the Child's Weight.—After the initial fall immediately consequent on the operation, there was a continuous gain in weight in all cases. This was not uniform, however, as some of the groups gained to a greater extent than others.

Fig. 2.

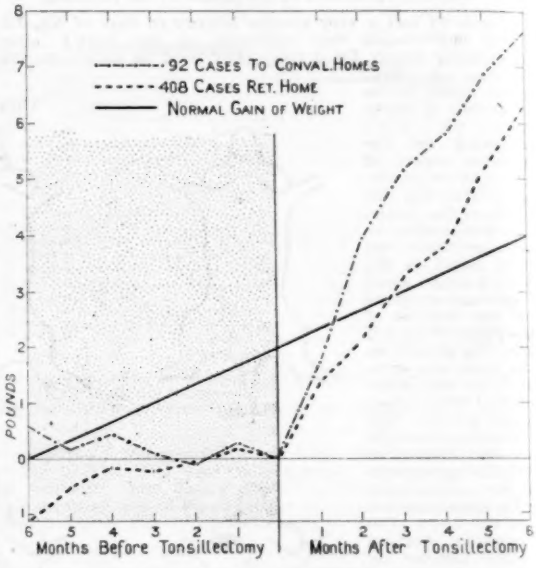


Fig. 2 shows the average weight before and after tonsillectomy. Examining this chart it will be appreciated that children sent to a convalescent home after tonsillectomy were on the average 1¼ pounds heavier at the end of six months than the less fortunate cases. We would stress the fact that the 92 children sent away were chosen because they had been actually losing weight during the six months prior to tonsillectomy. The remaining 408 had been either stationary or were showing but a feeble rate of gain.

Examining the various groups it will be noticed that Group 5, the rheumatic cases, showed the greatest improvement—that is, the average gain was 8·62 lb. The average gain shown by the other groups in the six months following operation was as follows: ear, nose, and throat group, 7·3 lb.; wasting and urinary group, 7 lb.; nervous group, 6·47 lb.; respiratory group, 6·27 lb.; alimentary group, 5·92 lb.

Discussion.

A review of the literature on this subject shows how very few papers include statistics. Moreover, most papers have been written by nose and throat surgeons, and their first observations have been at or about the time of operation. Analyses of the previous complaints and weight records are almost uniformly absent.

The benefits of tonsillectomy are outlined in a most convincing manner by Kaiser,[1] but his paper is open to the above criticisms. Barrington-Ward,[2] from the study of a large number of cases at Great Ormond-street, describes the problem and gives clear indications for the removal of tonsils. In a large number of cases of anorexia attending an out-patient department, studied by Bartlett,[3] the commonest pathological condition found was that of septic tonsils and adenoids. Brennemann,[4] in an admirable paper, pointed out the protean manifestations of nasopharyngeal infections, and has done much to awaken interest amongst pædiatricians in this subject. Such interest is reflected in the fact that, at

the Hospital for Sick Children, Great Ormond-street, whilst 2886 tonsillectomies were performed during 1920, during 1927 there were 3909, an increase of 34 per cent.

Indications for Tonsillectomy.—Our cases, on examination, showed either very much enlarged tonsils, or, more commonly, moderately enlarged or buried tonsils with enlarged tonsillar glands. With such clinical findings was associated a history of (*a*) nasopharyngeal affections, or (*b*) general infections (e.g., rheumatism, hæmorrhagic nephritis) or metabolic upsets (e.g., vomiting, bilious attacks), secondary to these repeated tonsillar attacks.

Method of Tonsillectomy.—All the tonsils were dissected out, the majority (i.e., cases from Great Ormond-street) being done by Mr. G. E. Waugh's method. A few had had their tonsils guillotined elsewhere previously, and along with their recurrence was a return of the symptoms. To be of any use a complete dissection of both tonsil and lingual tonsil must be made. Almost every case was kept at least one night in hospital.

Time for Tonsillectomy.—Undoubtedly the spring, summer, and autumn are the best seasons for the removal of tonsils, as the child is able, after a short convalescence indoors, to get out into the fresh air and to pick up quickly any ground lost. During the winter months, with prevailing catarrhal infections and acute infectious fevers, the operation is likely to be severely complicated.

We suggest that our investigation has demonstrated the efficacy of tonsillectomy in selected cases. 500 children, who had come to hospital complaining of various symptoms, and who were found to have septic or hypertrophied tonsils, reacted in an almost uniformly satisfactory manner to tonsillectomy and rapidly gained weight. The gain in all cases was not equal; in fact, in some cases it was small, but in no cases noted did the child actually appear harmed, and in almost every case it was greatly benefited. In a properly selected case there is no single operation in children's medicine more successful or that shows such dramatic results as that of tonsillectomy.

In those cases where convalescence was arranged, despite the unsatisfactory condition of the children before operation when they were actually losing weight, a considerably more rapid recovery was made and a greater maximum gain shown. It would be ideal if every child could have a fortnight at least at the seaside or a similar complete change after tonsillectomy. The convalescent homes throughout the British Isles, especially those under the auspices of the Invalid Children's Aid Association, are fully alive to the difficulties of making a child thrive when sent with septic tonsils. One of the questions asked on the medical certificate demanded by the Invalid Children's Aid Association is: "Does the child require attention to teeth or tonsils?" At a number of homes, when a child has been admitted with septic tonsils, the parents are asked to sanction tonsillectomy in order to prevent a waste of convalescence.

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Clinical and Laboratory Notes.

INTERLOBAR EMPYEMA.*

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THE most difficult empyemata to diagnose are those which arise in abnormal situations, such as the interlobar fissures. As there is considerable variation in the signs it may be of interest to quote a few cases.

Three Cases Described.

A gentleman, aged 30, was taken ill with a right-sided pneumonia. On the third day the left side was affected, and on the fifth he had pericarditis with friction all over the cardiac area, and a pulse of 130. After being desperately ill he slowly improved up to the nineteenth day, when his temperature began rising again. I saw him for the third time on the twenty-first day, his temperature having been 101° F. the two previous evenings. His right chest was moving well, though there were crepitations throughout the lower lobe, and there was still a little pericardial friction down the right edge of the sternum. The left chest moved very little. Over the apex and first space there was diminished resonance, poor rather bronchial breath sounds, and a few crepitations. In the second and third spaces weaker breathing. From the fourth space down louder breath sounds and more crepitations. On raising the right arm at right angles to the thorax there was a dull and silent area high up in the axilla about 1½ inches broad by 3 inches across, and below that crepitations. A needle put into this dull area revealed pus, and that afternoon a large empyema between the upper and lower lobes was drained by removal of a portion of rib high up in the axilla. The patient made an excellent recovery.

In another case the empyema, well shown by a radiogram, was between the upper and middle lobes on the right side. In that case there was actual dullness in the second and third spaces in front, with diminished resonance over the rest of the right chest. There was bronchial breathing at the apex, distant tubular breathing in the second and third spaces, below that weak breathing with coarse crepitations.

A third case was admitted under me in the 2nd Eastern General Hospital with what appeared to be a large empyema on the left side, there being dullness and silence from the spine of the scapula to the base. Major A. H. Buck operated in the usual situation, but the amount of pus was unexpectedly small, and there was no improvement in the general condition, the temperature remaining hectic. A few days later I found that the lower part of the back was slightly resonant, but just below the level of the spine of the scapula there was an area of absolute dullness about 3 inches in depth. An aspirator needle inserted here withdrew much pus which, however, reaccumulated. Major Buck then removed a portion of the fourth rib between the scapula and the vertebræ, and opened a large empyema between the upper and lower lobes of the lung. The operation was one of some difficulty owing to the depth of muscle. In this case the the original empyema was evidently interlobar, and some of pus had leaked down over the lower lobe where it was found at the first operation. The man made a good recovery.

Besides these I have diagnosed three other cases of interlobar empyema, which have been subsequently cured by operation through the upper axilla. One of these was not preceded by pneumonia, but by a fall in which the left chest was severely bruised. In another case the patient, an old man, died after operation.

Physical Signs.

When pus collects in an upper interlobar fissure there may be dullness in the second and third spaces in front, or high up in the axilla, or a band of dullness at the level of the spine of the scapula. Resonance is diminished over the lower lobe from compression and congestion. On auscultation, over the upper lobe there is weakened bronchial breathing from pressure, over any dull band very weak breath sounds sometimes tubular, and, below that, weak and rather bronchial breath sounds with crepitations. If much pus collects the lower lobe may be so compressed that it is dull and almost silent, leading to the belief that there is an ordinary empyema. Unfortunately, the physical signs differ in every case. The best place to insert a needle is in the upper axilla with the arm at right angles to the chest, since this is the seat of election for operation, there being no muscle in the way, but, if an interlobar empyema has ruptured into a bronchus, the remaining pus is always near the root of the lung, and it may be too deep to be reached by a needle from the axilla, and one may have to be used in the interscapular region or in the dull area in front.

Of empyemata between the middle and lower lobes on the right side I have only diagnosed two. In

* Being remarks made in a discussion at the Medical Society of London on Oct. 22nd. (See THE LANCET, Oct. 27th, p. 863.)

neither of them was the heart displaced to the left. The right chest was more or less dull all over. From the apex to the third space breath sounds were of rather distant bronchial character with fine crepitations. In the fourth space from the nipple out to the mid-axilla there was louder bronchial breathing with no crepitations. Below that breath sounds were much weaker, but crepitations could be elicited on deep breathing. Over the back breath sounds were bronchial down to the middle of the scapula and weak below that, but crepitations could be heard almost down to the base with a deep breath. In one a radiogram showed the right chest opaque with a lighter area from the apex to the third space, and a little light patch at the inner side of the base just above the liver. It also showed that the heart was not pushed over. I had a needle put into the fourth space in the anterior axillary line, where the bronchial breathing was loudest and where there were no crepitations. Pus was found, a portion of the fifth rib in the anterior axillary line was removed, and a large interlobar empyema was opened, the patient making a good recovery. In the other case the empyema burst into a bronchus before operation, and the patient died.

A very rare position for an empyema is between the mediastinum and the lung, the lower lobe of the lung being adherent to the chest wall. In the only case that I have seen the whole of the left lower chest was dull and silent, but the heart's apex was to the left of the nipple line. The temperature and the blood count indicated empyema. Needles in the ordinary area failed to find pus, but one just external to the angle of the eighth rib struck it. Later a piece of rib just beyond the angle was resected, and a large empyema opened which extended forward to a depth of 8 inches. It was bounded externally by the lung, which was completely adherent to the parietal pleura and collapsed.

Another rare position is between the base of the lung and the diaphragm. After a right-sided pneumonia the temperature pointed to empyema, but, though the lower half of the chest was wanting in resonance, it was not so dull as in empyema, and redux crepitations could be heard nearly to the base, but I found a dull and silent area about 3 inches broad over the lower ribs in the posterior axillary region. A needle inserted here withdrew pus, and a largish empyema was found between the lung and the diaphragm, with the lung firmly adherent to the chest wall above it. One point should be remembered in children—that breath sounds can often be heard distinctly through quite a lot of pus. If there is flat dullness it is always safer to explore.

Treatment.

As to the treatment of empyema, in the interlobar cases it is advisable to stitch the lung to the parietal pleura before opening, unless it is already adherent, and it is necessary to leave in rather a long tube to get good drainage. As mentioned before, the upper axilla is the easiest place for operation in those in the upper fissures, if pus can be obtained there, and the right anterior axillary line at the level of the nipple for one in the lower fissure.

In an ordinary empyema, especially if it is a large one, I strongly advocate aspiration one day, removing as much pus as possible, and operation the next day. This lessons shock, and gives a chance for the pleura to become adherent in the upper part and reduce the size of the cavity. It is not, however, a good thing to aspirate an interlobar one, since the larger they are the easier they are to open. Cure is much hastened if no air is allowed to enter the empyema after it has been opened. A good-sized tube should be used, not passed much into the pleural cavity, and the layers of the wound should be fixed tightly round this by purse string sutures. Strips of strapping put round the tube beyond the dressing and fixed to the skin help to keep it in position. The end of this tube is connected by a small piece of glass tubing to a long rubber tube leading to a bottle beneath the bed, or, better still, to a suction apparatus, such as that described by Dr. F. J. Poynton. If the tube should get blocked the end should be clamped by a spring clip before taking off the glass portion. Then the patient should be told to cough, the spring clip being released in the expiratory stage of the cough and put on again with the inspiratory stage. Sometimes sinus forceps may be necessary to clear the tube, and this should be followed by irrigation with eusol.

SKIN IRRITATION UNDER ULTRA-VIOLET RADIATION.

By Stanley van S. Boyd, M.R.C.S. Eng.

In over four years' constant practice of treatment by ultra-violet radiation I have had a large number of patients who have exhibited irritation of the skin in greater or lesser degree. While in some cases this irritation has merely been provocative of humour, in many the complaint has been bitter. Guided by the reaction of the sweat, which is, of course, secreted in considerably increased amount owing to the hyperæmia induced by the rays, I have been in the habit of recommending patients who suffered from this trouble to bathe their skins with alkaline lotions. In the milder cases this was effectual. The irritation being allayed, successive doses of radiation rapidly induced such resistance in the skin that the pruritus ceased to occur.

This year I had under my care at one and the same time three patients in whom this irritation was so severe that radiation treatment had to be abandoned. I had long sought for some common factor, in complexion or texture of the skin or what not, upon which I might depend to predict the probable occurrence of this distressing complication; but the fact that neutralising the perspiration gave relief to milder cases suggested the possible value of an investigation of the alkaline reserve in the severer ones. The results of these inquiries are to be seen in Table I. All of these estimations, and those reported in Table II., were carried out for me by the

TABLE I.

Case.	Serum.	Urine analyses.			
	CO_2 absorption.	(1) Litmus.	(2) Titration against N/10, NaOH.	(3) pH.	(4) NH_3-urea-N. ratio.
	Per cent.				
1	52	(*a*) Acid.	60	6·5	1 : 25
		(*b*) Alk.	12	7·6	1 : 35
2	50	(*a*) Acid.	60	5·3	1 : 15
		(*b*) Alk.	8	7·9	1 : 53
3	45	(*a*) Acid.	91	5·05	1 : 16
		(*b*) Alk.	9	7·7	1 : 36
Normals ..	50–75		20–40	5·5–6·5	1 : 15–1 : 25

(*a*) = 24-hour specimen.
(*b*) = Alkaline tolerance test—i.e., 1½ hours after feeding 5 g. $NaHCO_3$.

TABLE II.

Case 3.	Urine analyses during fast.			
	(1)	(2)	(3)	(4)
24-hour specimen ..	Acid.	91	5·05	1 : 16
After alkaline T.T. ..	Alkaline.	9	7·7	1 : 36
,, 72 hours' fast	Acid.	68·8	5·51	1 : 14
,, 120 ,,	,,	62·8	5·1	1 : 15
,, 240 ,,	,,	49·2	5·35	1 : 2
,, 324 ,,	,,	39·6	5·91	1 : 1·6

Harrogate Clinical Laboratory, and I wish to acknowledge my indebtedness to Dr. F. B. Smith for his invaluable assistance in this matter.

It will be seen that all the evidence in these cases pointed to the existence of a functional depletion of the alkaline reserve. The absorption power of the blood for carbonic acid was either below or at the low limit of normal. All the urines were highly acid to litmus, and when titrated against deci-normal sodium hydrate—evidence which was supported by the pH value. The ammonia-urea-nitrogen ratio was estimated as an indication of the proportion of total acidity which might be attributed to amino-acids. An alkaline tolerance test was undertaken so that any condition of true acidosis, as opposed to functional variations, might be revealed.

Case 1.—The patient was placed upon a course of alkalising medication, and although the period of testing unfortunately could not be prolonged, very considerable increase of tolerance of ultra-violet radiation was observed. Before alkalisation, a dose of 20 seconds, from which all rays shorter than 2900 Angström units had been filtered, had produced an irritation so severe as to bring on a syncopal attack; while afterwards an unfiltered dose from the same lamp of 45 seconds produced no irritation whatever.

Case 2 proved very different. Up to seven years ago there was no sensitiveness to strong sunlight at all. The patient then had an operation for the removal of the appendix, and a further one for mammary abscess. Immediately after this she observed that the least exposure to sunlight produced a papular rash with severe irritation. She had been to London, where her physician clearly considered her's might be a case of food allergy. She was first placed on a short fast, and then fed on single articles of diet, in order to discover to what foods, if any, she had become sensitised. At the same time, intravenous peptone injections were given, and these appeared to her to do her more good than anything. Her relief had been, I found, only temporary.

When I first saw her I found she had herself observed that a bruise would produce a purely local manifestation of the rash; and also that an immersion of her feet in sea water had given her a similar result wherever the sea water had bathed the skin. Alkalisation proving ineffectual, some of her serum was incubated with peptone-agar, after the method recommended by A. G. Auld for asthma. She had increasing doses of this serum over a period of three months, and though able to take ultra-violet light better than before her treatment, I regret to have to report that she retains apparently in full her sensitiveness to sunlight.

Case 3 was that of a patient who consulted me regarding rheumatic pains in the neck, shoulders, back, and knees, and whom I found to be showing nodular fibrous thickenings in the areas affected. A course of autogenous vaccine had been given her without much benefit. As we frequently find that such patients may prove responsive to their vaccine after a course of radiation, I attempted this treatment, but the itching was so severe that I had to desist. I found on inquiry that for five years there had been severe irritation of the skin on exposure to the air immediately after the daily bath, and this had been so severe that at times relief was sought by the use of aspirin.

I recommended a period of auto-nutrition, with colonic lavage, and estimations of the urine were made from time to time. This treatment is instituted so that while being fed on nothing but water, the body may have an opportunity of selecting the amounts of the various food elements required for the metabolism from the storage depôts, and because it has been found that under these conditions abnormal deposits, such as fibrositic nodules, are absorbed or dispersed most rapidly. The fast in this instance lasted for 324 hours, and, as will be seen from the summary shown in Table II., the acidity of the urine steadily decreased from 91 to 39·6.

Both purposes of the treatment were attained. The rheumatic pains were completely relieved, and the patient was able to take ultra-violet radiation without irritation. Incidentally the after-bath trouble disappeared also.

The practical result of this inquiry has been that a routine examination of the urine is made before treatment is undertaken, and in such cases as show marked acidity I prescribe an alkaline mixture, and, if possible, increased exercise in the open air (this, by augmenting ventilation, induces an increased CO_2 excretion), in order to prevent such irritation as might arise from deficient alkaline reserve.

Harrogate.

Medical Societies.

A CONGRESS OF RADIOLOGY

THE British Institute of Radiology, incorporated with the Rontgen Society, arranged a congress on radiology for Nov. 14th–17th. On Friday, the 16th, the subject of discussion, under the chairmanship of Sir HUMPHRY ROLLESTON, was

THE VALUE OF THE OPAQUE MEAL IN DIAGNOSIS.

Sir THOMAS HORDER maintained that despite the inestimable contribution of X rays to diagnosis clinical medicine still had a legitimate sphere of action, and that to parcel out the patient among radiologists, bacteriologists, and biochemists was not to do the best possible thing for him. Patients were coming to believe that there was a difference in essential value between facts elicited by instrumental and by clinical investigation. The only difference was, in reality, in the degree of facts, in their interpretation, and in their relation to other facts. The crux of the decision lay in determining what was and what was not pertinent to the main issue. The great art of diagnosis did not lie in the accumulation of a vast quantity of data, nor in establishing a superiority for one set of data obtained by one particular method, but in taking a survey of all data and selecting the essentials. The contribution made by radiology towards the diagnosis of alimentary disease had been quite incalculable, and would be even greater if the standard of radiograms were raised. Numbers of indifferent radiograms might well be exchanged for one or two good ones, and greater care should be exercised in selecting cases for opaque meal examinations. Partial investigations should be rare; the number of fallacies increased with every limit imposed upon the examination. It was by no means true that the better the radiogram the easier the interpretation; the contrary was the case. As finer and finer variations were demonstrated the meaning of the observations became wider and demanded the utmost forbearance in its reading. Far better be afraid to "rush in" than be afraid to forbear. Radiologists should beware of theorising in their reports; what the clinician asked of them was an opinion on the present state of the patient.

Spasm of the œsophagus might be so chronic and tight as to appear malignant when it was not, and the most skilful technician might fail to get a bougie through under deep anæsthesia. A routine investigation of an opaque meal should always include watching the bolus from the pharynx to the stomach, or a cardiac growth might be overlooked. Localised and extraordinarily persistent spasm was also common in the stomach and duodenum and was often functional; the terms "hour-glass," "cascade," or "cup and spill" carried with them fixed notions which too quickly determined the report. Radiologists could give the greatest help of all in carcinoma; clinicians wanted the earliest possible suggestion—lessened motility, deformity in peristaltic wave, and so on—and could not afford to wait for proof. The radiological picture was not of great significance in visceroptosis; it was unhealthy functioning and not faulty position that underlay symptoms. He questioned whether reports claiming to diagnose "colitis," "gastritis," or "abnormality of the mucosa" did not strain the method past its present possibilities and do it a disservice. Delay in emptying was no more proof of disease than variation in length and calibre. Radiology helped very little with diseases of the appendix, chiefly because of its complex pathology.

Radiology and the Surgeon.

Mr. A. J. WALTON recounted the help he had gained from radiology and emphasised the importance of the radiologist. The most modern equipment was useless in the hands of an untrained man. Too often,

also, cases were sent for X ray when the most superficial clinical examination would have made it clear that such an investigation was unnecessary. A second fault was that doubtful cases were provided only with one poor film, unaccompanied by a report, which was not only useless but positively dangerous, as it caused wrong diagnosis and a false sense of security. A careful investigation by a well-trained man and accompanied by a detailed report was of inestimable value and almost essential to diagnosis. The report must be regarded only as one piece of evidence among many, and should include a detailed account of findings as well as the conclusion. The surgeon, also, should let the radiologist know his observations. The films were of secondary value often to the screen findings; a film was a single photograph of a cinematograph performance—a fact which was often forgotten by the lay and medical public. Diagnostic difficulties were probably only temporary, and the majority of them to-day only arose when the investigator was relatively unskilled.

In gastric ulcer the history would give a 90 per cent. accurate diagnosis while radiology also gave 90 per cent. accurate results; the two did not exactly correspond, so that between the two methods a very small doubtful percentage remained. Great difficulties in diagnosis were encountered in visceroptosis in women, simulating ulcer; gastritis in middle-aged men simulating carcinoma; chronic pancreatitis simulating ulcer or cancer; penetrating ulcer of the lesser curvature and carcinoma of the stomach. In these cases coöperation between surgeon and radiologist was of immense value. Of great importance also was radiological investigation of the rest of the body, for chronic pulmonary tuberculosis might simulate gastric ulcer. The clinical history of duodenal ulcer was usually definite, but gall-stones might simulate it and require radiology for their differentiation. In the future, X rays would be most helpful in determining whether the ulcer should be treated medically or surgically. If there were only slight irregularity of the cap or hyperperistalsis, the ulcer might be more of the nature of an acute erosion and susceptible to medical measures. The scarring of an old ulcer might give appearances indistinguishable from those of active ulceration. The frequency of duodenal diverticulum was not fully recognised, but the X ray picture was unmistakable. Superficial gastro-jejunal ulcer could not always be distinguished from the irregularity of an anastomotic opening, but radiology was of great value in confirming a diagnosis. Distinct obstructions in the small intestine might be clearly revealed. Entry of the barium meal into the appendix and changes in mobility might indicate degenerative rather than inflammatory changes. On the whole, the value of the opaque meal depended entirely upon the investigator and on the degree of coöperation between radiologist and clinician.

The Radiologist's Point of View.

Dr. A. E. BARCLAY said that surgery and radiology must progress hand in hand, and there was still plenty of room for increased accuracy in diagnosis and treatment. The classical symptoms of disease known to Osler had been for the most part swept aside in the realisation that a defect in one section often showed its first symptoms in some quite distant part of the abdomen. Many gastric conditions differentiated 25 years ago were no longer recognisable as clinical entities, and their exciting cause was seldom in the stomach itself. Gastro-intestinal symptoms were perverse and unreliable guides to facts within the abdomen, and the surgeon would accept the opinion of an expert radiologist against the clinical signs. No elaboration of apparatus and no perfection of technique alone, however, would give accurate results. The man behind the gun made all the difference. Those in authority had not realised the vital importance of obtaining the services of the best men for this specialised work. Those who had taken the diploma course should be saved from many errors that pioneers had made. If clinical, radiological, and operative diagnosis were compared it would be found that the two latter were far more often in agreement than the two former. Sometimes the radiologist was blamed for not having reported an ulcer or neoplasm found at operation months after he had made his examination; every X ray of an ulcer case might well be labelled "valid for three weeks only." X rays had shown how different were the living conditions in the alimentary tract from those of the post-mortem room, and that tone was closely associated with the emotions and with general health. The change brought about by radiology was exemplified most clearly in the diagnosis of œsophageal conditions, of which the symptoms and signs were misleading, and the only previous diagnostic aid had been the blind barbaric bougie. With the exception of adhesions and a few rarities, X rays of the stomach revealed only two pathological conditions—ulceration and malignancy—and had shown that in earlier days the stomach had often been unjustly blamed for conditions which had their origin in other organs. The patient radiologist could now detect the smallest lesions, and only those in the pyloric antrum escaped his investigation. The duodenum had been shown to be the seat of ulceration as prevalent as that of the stomach, but in many cases the clinical picture did not correspond with the radiological. Definite diagnosis should be confined to cases where the crater had been demonstrated—a tedious and skilled business. Lesions of the small intestine were rare, but the clinical signs were so vague that a diagnosis was quite impossible and the radiologist alone could give the clue to site and obstructive nature before acute symptoms prejudiced the chance of operative success. Radiological diagnosis might be better with the old semi-solid meal than the modern fluid one, which was less readily obstructed. For appendicular examination a fixed routine was supremely important. The three points in identifying a chronically inflamed appendix were ileal stasis, fixation on careful manipulation, and pain on pressure over the appendix. In palpation the radiologist alone could be certain of putting his finger straight on the right spot before the patient had time to resist. In acute or semi-acute appendicular trouble there might be no shadow in the terminal ileum after five hours, but a fair shadow in the ascending colon, and perhaps beyond. If an appendix retained the opaque salt days after the cæcum had emptied, it was obviously not doing its duty. Taken all in all, the radiological diagnosis of appendix trouble was vastly more reliable than the clinical.

The signs of growth in the large intestine were obstruction, fixation on palpation, and filling defect, and workers were apt to rely too much on the first. In the absence of spasm quite large growths might be missed. Sources of error in the detection of a filling defect were partial filling and scybala not impregnated with the salt. Diagnoses of colitis should be very rarely given in the absence of Crane's "string sign" and a few other fairly definite appearances. Diverticulitis, however, was usually obvious.

The diagnosis of lesions of the large intestine was the least satisfactory of all, but on the whole so valuable was the information obtainable that the clinician who did not use the opaque meal was as negligent as a mariner who set out without a compass. The work should be done by a specialist who had had wide previous experience of medicine and pathology and with time to examine and re-examine. Good X ray work was expensive and valuable; cheap work had brought much unnecessary discredit on the method.

Discussion.

Dr. H. E. GAMLEN emphasised the importance of having a qualified radiologist, and said the diploma should be made more difficult and should include adequate knowledge of radium and of pathology, and candidates should give evidence that they had followed up cases from beginning to end. Clinicians made matters very difficult for the radiologist by sending him no information and not telling him the after-history of the cases.

Dr. GILBERT SCOTT said the radiologist must use to the full his clinical and radiological experience, powers of deduction and sound judgment; he was a diagnostician and not a technician. He described the contrast between early opaque meals and modern technique, whereby a detailed examination of the stomach could be made in five minutes with a 90 per cent. accuracy. Diagnosis was now based on direct evidence, and the photograph was now used more as a record than a diagnostic aid in a mobile organ like the stomach. The lesion was detected by manipulation on the screen; about 3 oz. of a palatable mixture was first given and smeared all over the stomach by means of a hand on the abdomen. This revealed the antero-posterior wall, which the full meal examination did not. Differences in radiological and surgical findings were more often due to the radiologist "finding" a lesion and the surgeon failing to find it than vice versa; this was an error of the inexperienced radiologist who took normal variations for pathological lesions.

Dr. L. A. ROWDEN said that his diagnoses were made as much on his clinical examination as on his X rays. He never took more than one patient in one day for an opaque meal, and the investigation lasted from 10 A.M. to 5 P.M. He began by screening the whole body, then passed on to the Scott-Barclay gastric examination, then to painting the duodenum, and then to the full meal and the follow-through. His meal was palatable, wholesome, and nourishing, and he never used barium.

Dr. G. E. VILVANDRÉ said he had learned much in the theatre and post-mortem room. Screen examination was invaluable, but good plates at frequent intervals were also necessary to reveal small carcinomata. The eye could miss things which the photograph fixed. The indefinite "chronic appendix" could be diagnosed by X rays; tenderness, concretions, fixation, and calcified glands were all useful diagnostic points. Many "silent regions" should not be silent, but the sigmoid was a very difficult part to examine and a button-like early growth would not show on the screen. Therefore any small abnormality should be pointed out and investigated by sigmoidoscopy. The same applied to the œsophagus.

Dr. J. R. WYLIE gave statistics of the 364 barium meals administered at the Miller General Hospital during this year. Seventy-five gastro-duodenal cases had subsequently been operated upon; 23 had proved to have gastric ulcer, 29 duodenal ulcer, 8 carcinoma, 2 gastric and duodenal ulcer, and 1 adhesions, giving a percentage of organic lesions of 98 and of absolute accuracy of 88.

Dr. G. B. BATTEN said that when surgeon and radiologist differed about the presence of a duodenal ulcer he believed the latter. He thought there was a happy mean between Dr. Rowden's lengthy technique and the rapid American style where every possible lesion had been tabulated and numbered and 66 barium meal investigations were made in an afternoon. There was a danger of causing hæmorrhage if ulcers were too freely manipulated.

Dr. R. C. RODGERS said that many cases sent up as gastric or duodenal ulceration turned out to be chronic appendicitis. If there was delay in the cæcum he gave an enema, and if the cæcum was found empty with two or three dots round about it the appendix was usually pathological; his percentage of accurate diagnoses had been fairly high.

Mr. P. T. CRYMBLE said that the radiologist of the future would be an expert gross pathologist. Surgical findings must not be taken as scientific fact. Many ulcers were now found in the second part of the duodenum, though formerly they were believed to be rare in this portion, and multiple ulcers were more common than single. He had had some help from emptying-rates; a seven-hour gastric retention persisting for some months justified laparotomy.

Dr. JOHN MUIR said that it was very difficult to evaluate this method on percentages, as so many cases did not come to operation. The value depended entirely on the impression given to the clinician; therefore reports should be carefully sent up. Radiologists were specialists and should stick to their specialty; it was for the clinician to ask questions and make the diagnosis. He had collected from the literature 15 radiological signs of appendicular disorder and 12 of them were absolutely worthless, although repeatedly quoted. He asked for contributions to form a pathological teaching museum for students of radiology, so that the museum specimen and the X ray photograph could be displayed side by side.

Dr. STANLEY MELVILLE said that the clinician was apt to forget that the radiologist was talking only in terms of shadows. After five weeks' alkali treatment an ulcer would disappear, but that was no justification for stating that the ulcer was healed. It was for the clinician to say when a lesion was healed; the radiologist merely reported that at a given time there was no radiological sign of ulceration and that was where his business ended—or ought to end.

Mr. WALTON, replying, commented on the remarkable agreement manifested throughout the discussion; criticism lay not against radiologists, but against the public interpretation of radiology. Ludicrous statements were made by people who produced and relied on single films. There was no discussion on the value of radiology properly carried out. Of all silent areas the rectum was the most silent and must not be forgotten. It was most essential that some senior person should decide which cases were to be sent for X ray examination.

Dr. BARCLAY also replied.

PUBLIC HEALTH CONGRESS.

LONDON, NOV. 19TH–24TH.

BRITISH municipal associations met in congress on public health administration this week at the Agricultural Hall, London. The first act was the formal opening of the exhibition by Mr. NEVILLE CHAMBERLAIN, Minister of Health. After Sir FREDERICK WILLIS, chairman of the organising committee, had explained the origin of the Congress as an offshoot from the Congress and Exhibition of Public Works, which had become too occupied with roads to deal faithfully with the public health aspect of its duties, Mr. CHAMBERLAIN spoke of the value of the exhibition to exhibitors and visitors alike, enabling them to compare notes on what the manufacturers had to offer to local authorities engaged in public health work and what the local authorities needed. He illustrated by statistics the wonderful work of public health measures in maintaining an increasing population of the country despite the enormous decrease in birth-rate. Some people deplored an increasing population, but he believed warmly in the British race, and thought the more there was of it the better. He outlined the proposed reform in the poor-law and the greatly increased responsibility and power thereby given to local authorities for assisting the public health.

In the afternoon Sir ARTHUR STANLEY presided, when Sir GEORGE NEWMAN gave an address on

The Purpose of the Public Health Service.

Its purpose, he said, was continually changing, and there had been a public health purpose before there had been a public health service. Its object had been to prevent "famine-pestilences," which were traced to unsuitable food and the nuisances consequent upon the flooded state of the country. The solution, therefore, had been more and better food and drainage. The first stage in the development of the public health service had been land drainage and agriculture which, although a thousand years old, was an ever-new problem. The next stage had been one of opposing by regulations, as far as possible, the diseases known as "leprosy" and "the plague." Leprosy was the first disease against which a by-law had been passed

in England, and the first Sanitary Act had been directed against the plague. At this time arose the "Commissioners of Sewers"—a position which had been Sir Thomas More's first public appointment. In the seventeenth and eighteenth centuries smallpox, typhoid, influenza, and cholera had directed the purpose of the public health services towards the channels of infection—the environmental factor. The study of typhoid had led to the establishment of adequate water-supplies. In our own period—the "golden age of bacteriology" introduced by Pasteur and Koch—the centre of gravity had moved from channels to causes, from the environment to personal hygiene. Between 1870 and 1910 no less than 20 great diseases had been traced back to their organismal cause. The two great fundamental purposes of all public health work must be the improvement of the environment of man and the care of his personal bodily health. England had unquestionably the most complete and comprehensive public health service that there had ever been, and the State intervened on this enormous scale because it had now been realised that the purpose of that service was no less than the survival of man and the increase of his capacity. Nations which had disregarded the communal health were not here to give evidence. No single factor had changed the lives of races more than disease. Unless man conquered disease, disease would conquer man. Last year England had saved 37,000 babies over and above the average number saved in 1910, thus proving that life could be saved hand over fist. Not only were lives saved but also man was being taught how to live a physiological life. This amazing triumph had come about largely because medical science had captured for its own use a great many non-medical agencies and powers. The speaker instanced the thermometer, steam for steam-disinfection, the prism and ultra-violet rays, analgesic drugs and anæsthesia, Liebig's work and proprietary synthetic foods, photography, the internal-combustion engine, X rays, and radium. It had captured also the social life of the people; health was the most popular subject of government and was "news." Rapid communications enabled us to transmute scientific discovery so that it became the property of every man, woman, and child. One thing not exhibited was the National Health Insurance, a service based on the guild system of the ninth century. He quoted details of the expenditure on social service, which in 1901 was 31 million pounds and in 1926 was 308 million—figures unprecedented in the history of the world.

At the morning session on Nov. 20th the subject of discussion was

Research in Relation to Public Health.

Sir ARTHUR ROBINSON took the chair and spoke of the importance of the research worker in all the problems of public health, and of the great and immediate interest of the State in research.

Sir WALTER FLETCHER described the steady evolution of public health policy from negative morality, "Thou shalt not," to positive morality, "Thou shalt"; from punitive codes to a great constructive policy of service, from opportunism to the principle of maintaining and developing all the conditions of life which made for health and efficiency. That progress, he said, had been due to the steady application of science as science had developed. The public health official was performing an art because he was dealing with human beings; before he could get the public with him he had to be not only the exponent but also the interpreter of science. There was no simple relationship between research and its application in public health work; there must be a lag, due partly to deficiencies of interpretation, partly to imperfections of the machinery of Parliament, the vehemencies and exigencies of party, partly to social customs and prejudices and the efforts of cranks, and partly at times to physical fear. Fear, indeed, often accelerated reforms, as it had at the time of the two cholera epidemics in 1848 and 1866, when the first Public Health Act and the Sanitary Act had been saved from almost certain disaster by the outbreak of disease.

The first branch of science to shape and model public health policy had been bacteriology; all the great triumphs of modern public health were dependent on patient and unseen laboratory work. They were now supposed to be the obvious operations of common sense, but the common sense of to-day was the laboratory discovery of yesterday. The application of bacteriology had perhaps gone too far in some directions, for instance, in terminal disinfection and in some of the modern rigour of plumbing requirements. In other directions it had not gone far enough. The milk-supply was an instance where, if the public could only have realised the extent of the evil, they would have made it a chief political issue. The story was a discreditable one, however told; political difficulties and other matters had long delayed the great boon of clean milk that bacteriology had to offer. There were curious local differences in the way the resources of science were applied. Protection and immunisation against diphtheria were greedily applied in one great city and almost untouched in another. In too many directions, moreover, bacteriological science had no help to give, for instance, in virus diseases.

Other sciences also had developed, notably physiology. While this country had conspicuously applied the work of foreign bacteriologists, it was equally conspicuous for producing physiologists and neglecting the applications of their science. The industrial revolution had brought human bodies into constant contact with restless machinery, and the opportunity to help their adaptation had been neglected. Even now some people would take the utmost trouble to care for dead machinery and neglect the care of the human machine. The neglect of science in the great controversy about hours of labour had been pathetic; it had never occurred to either side that shortened hours meant greater output, and that a simple experiment would have shown that both sides could have what they wanted. The demands of war had found no coherent body of knowledge applicable to the problem, but out of the hasty improvisions of that time the Industrial Fatigue Research Board had been born. A most interesting application of physiology had been the astonishing revolution in the health of women with modern dress and habits, so that chlorosis had disappeared. Another great industrialisation of rural populations was taking place—in India and Africa—and this country had a great responsibility to see that this movement was not mismanaged as our own had been—a responsibility that could only be fulfilled in the full light of science.

Nutrition and Diet.

Aggregation in cities had brought about an immense change in the food of the people, and developments in transport and preservation had brought obvious benefits and evils. The chief evil was the dangerous loss of essential food values not to be detected by the ordinary person. The matter was of overwhelming importance and—if choice must be made—should take precedence of housing. The public health officer was empowered to condemn unfit food, but science was calling out for the application of a constructive policy of definite nutritional guidance, for a city physiologist as well as a city bacteriologist. In dietetic improvement lay the hope of remedying the deeply disquieting condition of the national physique, fitness, and beauty, which was the proper test of all public health work. The reduction of infant mortality and the prolongation of life would only lead to a reduced youthful working population supporting a greatly increased elderly population. The country did not need old men, either in war or in peace. The proper test of a country was the number of vigorous young men and women able to do its work. No one could walk through an industrial town or a football crowd without a sinking of the heart, and recent recruiting figures were most ominous. Undoubtedly there were two standards of physique

in the country; the stunted industrial type and the athletic undergraduate type. Neither birth, wealth, nor housing accounted for this difference; as the late Garter King at Arms had said, "the whole of the nation is an aristocracy by blood." The inheritance of the elder son only had prevented any deep social cleavage. Dr. Corry Mann's work, confirmed by others, had shown that this difference in physique was purely a question of food, not of quantity but of quality. The men of bad physique made slums, and any slum clearance that did not improve physique would be expensive, temporary, and palliative.

At the afternoon session Dr. C. HUBERT BOND read a paper on

Local Organisation for the Prevention and Treatment of Mental Disorders.

He set out to show that for many persons suffering from mental illness there was no available treatment, and that for many others available treatment was rendered unsuitable by archaic procedure. He pointed out that of the 20,000 persons who annually came under official cognisance on account of mental disorder a great number had to work out their own salvation, enduring a feeling of inferiority aptly described by the French word *défaillance*. After giving nine examples of cases for which there was at present no treatment available, the speaker emphasised the importance of seizing the "psychological moment," and went on to consider the facilities required for voluntary treatment of incipient mental illness. Undoubtedly, he said, the out-patient department of the general hospital was the best nucleus for a clinic. Patients would go there more readily, and there was every opportunity there for the essential physical investigation. A doctor could probably not do justice to more than five patients in a half-day clinic. The staff of mental hospitals should be large enough for the senior members to spend at least half a day each week in the out-patient department of a general hospital. Beds should be provided for elaborate physical examinations and to remove patients from domestic worries; at present only one general hsopital in the country had beds for mental cases. The present state of the law was a serious obstacle to treatment of the incipient case as well as to early treatment of the case for which treatment facilities were available. Dr. Bond gave eight examples where certification was undesirable and unnecessary, and acted as a bar to efficient treatment. These included puerperal insanity, benign stupor after shock, severe delirium tremens, and senile dementia. None of these possessed volition, but none either assented to or refused treatment; all were heedless, indifferent, and free from any grievance at "infringement of liberty." Florence Nightingale had sagely remarked, "It may sound a strange provision to insist, as the first requirement in a hospital, that it should do the sick no harm."

For the mentally disordered patient who was antagonistic to treatment there was adequate provision; they were the smallest group and were by no means irrecoverable. It would be disastrous if the mental hospital became entirely or even mainly concerned with the reception of the "unwilling" patient. There had grown up a very grave abuse of the "urgency" order, so that mental patients were compelled to endure the stress of an interim reception at the poor-law institution instead of being sent straight from their homes.

After outlining and discussing the recommendations of the Royal Commission, 1924, Dr. Bond proposed a scheme of local organisation. Institutions—mental hospitals and colonies for defectives—would be the pivot, belonging to the local authority and governed by "mental health committees," of which there should be one only to deal both with mental defect and mental disorder. The committees should have women members and should arrange for out-patient clinics at the local hospitals and for reciprocity between hospitals, universities, and mental institutions. The chairman and vice-chairman should be ex-officio members of the public health committee, and there should be members from the public health and education committees on the mental health committee. That committee must have a medical officer—the superintendent of the nearest institution or the lecturer in psychological medicine at the nearest university—and if more than one such authority were available it would be wisest to appoint a special officer distinct from all of them. An important activity would be the medical organisation of school-children from the psychological aspect. The medical staff of the mental institution should have every facility for keeping in touch with the general body of the profession and with recent advances, and the same fluidity of service should be available for mental nurses. Nurses should be allowed periods at convalescent homes, poor-law institutions, or even in private houses. Municipal hospitals might be used as auxiliary units to mental hospitals, or for cases of senile dementia. The general hospital unit should treat neuroses, psychoneuroses, and threatened relapses, and should examine periodically mental defectives, abnormal children and delinquents, and provide a place for interviewing patients absent on trial from mental hospitals. "Boarding out" should be exercised more extensively, and an official should be appointed to do the work now done by the relieving officer in connexion with mental disorder. Health visitors should be of two kinds—those able to supply just the information the staff required about the patient's home, &c., and those who could supply the patient with the information he needed about employment and home conditions when he was discharged, and who were experienced in after-care work. The sympathetic coöperation of the general practitioner was essential to the scheme.

MEDICINE AND THE LAW.

Parent's Refusal to Allow Operation on Child.

FAILURE to provide adequate medical aid is specially mentioned in Section 12 of the Children Act as one of the methods in which a parent may commit the offence of wilfully neglecting a child in a manner likely to cause injury to the child's health. A father was recently charged at Wolverhampton under the section for refusing to permit an operation for enlarged tonsils. The evidence was that the child, a little girl of 6, was at present suffering from deafness and thickened speech, and that her state of health retarded her education. Three school medical officers gave evidence, and the head mistress of the school said that the child was very intelligent, but, because of her state of health, had to be given individual tuition. The father said he was afraid of the possibly fatal results of an operation; he wanted the child to go to an institute where, he said, she could be cured without surgery. He argued that the statutory words, "medical treatment," did not include surgical operations. The justices found the charge proved, but adjourned the case for a month with the intimation that the penalty would depend on the father's action in the meantime.

It is, of course, too late to argue that "medical treatment" in Section 12 excludes surgical operation. In Oakey *v.* Jackson ([1914] 1 K.B. 216) the Melton Mowbray justices, who had thought a father could not be convicted for refusing to permit a surgical operation for the removal of adenoids, were corrected by the judges of the King's Bench Division. Mr. Justice Darling then pointed out that the section mentions "loss of sight" as one of the forms of "injury to health," and that this reference showed clearly that Parliament contemplated cases in which a parent would be bound to allow his child to undergo an operation. In Jackson's case the justices, though at first reluctant to convict, did find as a fact that the child was suffering injury to her health from the adenoids, and that the only possible remedy was a surgical operation for their removal. This finding

was all-important. "A refusal to allow an operation," said Darling, J., "is not necessarily such a failure to provide adequate medical aid as to amount to wilful neglect causing injury to health." It is always a question of fact, and the justices have to take into consideration the nature of the operation and the reasonableness of the parent's refusal. One element for them to consider, added Mr. Justice Avory, "is whether the person who advises the operation is a qualified medical practitioner or merely some irresponsible person."

Powders for Cancer.

At an inquest at Exmouth Mr. Tweed, the coroner for the Honiton district, had before him evidence that a man of 75 who had died of cancer had been treated by an unqualified practitioner, Mr. Raphael Roche, of Harley-gardens, Kensington.

"Mr. Roche," said the coroner, "is a well-known man and has been consulted by a great many well-known people; a great many tributes have been paid to his skill, and one cannot but think they are genuine. One cannot shut one's eyes to the fact that in many cases cures have been made by persons outside the medical profession; I think it unwise to assume that all treatment outside the profession is to be barked at or regarded as nonsensical. I think Mr. Roche has made out a case that he has effected remarkable cures."

The evidence, summarised in the *Times* of Nov. 13th, was as follows. The deceased's daughter said her father consulted Mr. Roche in London last September; her father was charged 15 guineas for the consultation and some medicine. The following day there arrived at Exmouth by post two packets of powder. On Oct. 24th, about four hours after taking the powders, her father became very sick and further doses of medicine were followed by sickness. The analyst's certificate showed that the powders contained no poison: "they consisted of a basis of cane sugar, to which I was unable to find that anything had been added." Mr. Roche said nothing could be found by chemistry or spectrum analysis in any of the drugs he made; he used drugs in an entirely novel way upon which he had offered to lecture to the Medical Council or the College of Physicians, but his offer had not been accepted; his method was to use drugs in non-tangible quantities; the powders contained phosphorus "which could be revealed only by the study of the vital force itself." Before he took patients, he required them to sign a form declaring that they knew him to be an unqualified man, and that no legally qualified doctor whom they had consulted had been able to cure them. Dr. Walker, of Exmouth, who had attended the deceased, said the patient suffered from cancer and could not have lived four or five months. Counsel for Mr. Roche pressed Dr. Walker in cross-examination with regard to his having recommended the analysis of the powders. Dr. Walker drew Mr. Roche's attention to the difficult position of a qualified practitioner who knowingly signs a death certificate where the deceased has been treated by an unqualified man. The coroner recorded a verdict that death was due to a malignant growth in the stomach which caused internal hæmorrhage. Since the inquest interviews with Mr. Roche have appeared in more than one London newspaper. To one interviewer he is reported to have shown—with an unprofessional disregard of the oath of Hippocrates—"a long list of patients, including dukes and earls, and even members of the medical profession." The Honiton coroner is satisfied that he has "effected remarkable cures." It must have been difficult to judge of the nature and success of Mr. Roche's treatment from the evidence in the Exmouth case alone.

RADIUM FOR HOSPITALS.—Westminster Hospital is spending £20,000 upon the purchase of further supplies of radium. The Edmonton Board of Guardians are purchasing half a gramme at a cost of £6000 for use in their North Middlesex Hospital, which is to be constituted a radium centre for the whole of the county of Middlesex.

Reviews and Notices of Books.

PSYCHOLOGICAL CARE OF INFANT AND CHILD.

By Prof. JOHN B. WATSON and ROSALIE WATSON. London: George Allen and Unwin, Ltd. 1928. Pp. 153. 5*s*.

HAVING won undoubted victories for the behaviourist psychology in the laboratory, Prof. Watson carries the battle into the nursery, and like an invader seeks to impose his order on the conquered territory. Here he has joined hands with Pavlov, whose views must undoubtedly cause a radical change in all future psychological orientation. What Freud has done in the consulting-rooms to unravel or de-condition the minds of his neurotic patients, Watson attempts to do, however, in a prophylactic way in the nursery. That is to say, he seeks to educate parents and nurses in the new objective psychology by showing them that all errors in behaviour are due to the mal-conditioning of a very small number of instinctive-reflex activities. Our behaviour, he holds, is nothing more than the building up of complicated reflex patterns on a few simple inherited themes. By eliminating all extraneous stimuli, by concentrating upon manipulative activities we can turn out useful children socially orderly, clean, and obedient in the best behaviouristic sense. Motherhood, paternity, and nursing thus become scientific crafts with reflex machines to work upon. Knowing what sort of citizens we wish to produce—that is, what behaviour we ask of them—we can produce them almost at will. Thus from the scientific cash register the change will be produced with unfailing fidelity and the reflex child of the future, well-conditioned, will arise to build the new Robot Jerusalem.

It is beyond debate that Prof. Watson deserves credit for introducing scientific methods into psychology and for his application of the neurophysiology of Pavlov to the study of human behaviour. But the fact remains that although much that he says is true, much that he leaves unsaid is equally true. His conception of human psychology has the very limitations which laboratory methods impose, and to suppose that what has been revealed to him in the laboratory is the total of human action is to claim an omnipotence that no scientific method deserves. While the problem of cell life—in metabolism and reacting—still remains a subject for research and discussion, views on human behaviour will have to be debated on a wider fields than the behaviouristic. In the behaviourists' world the guiding power bears a striking resemblance to Ivan Petrovitch Pavlov, and the mothers of men are replaced by an iron cow from whose cold udders the child draws his first sustenance. In the real world, however, people will continue to feel that although science will teach them a great deal about their body as an instrument, life itself is too big to be crammed into a reflex machine.

With a consciousness of these limitations we can still recommend this attractively written book. The student of psychology will accept its practical value, and parents will read between the lines, while oblivious of their fate the little Robots play.

THORACIC SURGERY.

Die Chirurgie. Edited by M. KIRSCHNER and O. NORDMANN. Berlin: Urban and Schwarzenberg. Lieferung 18, pp. 273. M.21. Lieferung 20, pp. 189. M.19. (Band IV. Teil 2.)

THESE two volumes are devoted to the thorax, but do not include the surgery of the œsophagus or heart. They contain a series of articles by different authors, profusely illustrated, and give an excellent epitome of the surgery of the air passages, of the pleura, of the lungs, and of the chest wall. The good quality of the work as a whole emphasises certain defects. There are hardly any references to work outside

Germany and Austria; recent instructive work in America, such as that of the Empyema Commission, is ignored. Indeed, in certain articles very little attention is paid to recent work; among the long list of references at the end of the article on pleurisy and empyema, for example, three only are more recent than 1921.

In the first volume the opening chapter, Die Chirurgie der Lunge, by A. W. Meyer, deals adequately with the anatomy of the thorax; the physiology and pathology of respiration; differential pressure forms of apparatus with numerous illustrations of the early types of "Ueberdruck-Apparat," and a comparatively brief section on insufflation. At the end only there is a brief account of the principles of technique for pleurotomy, pneumotomy, and for suture of the lung and bronchi. The title of the chapter is therefore somewhat misleading. The next two chapters are on Foreign Bodies in the Bronchi and on "Tracheo-bronchoscopie," by H. Frenzel. These give detailed accounts of the instruments and the methods of using them, and are most complete in this respect. In the former no account is given of the method of extraction of a foreign body if per-bronchial instrumentation fails; nor is reference made to the removal of pus, and to the irrigation of cavities in cases of abscess and bronchiectasis, which Chevalier Jackson, among others, has brought to such a fine art in America. The chapter on Surgery of the Pleura, by Felix Landois, includes injuries to the lungs and pleura. Apart from the omission of traumatic asphyxia, of the important work of the Empyema Commission and of E. A. Graham, and a lack of emphasis on the dangers of early open drainage of pyothorax, the article is good and comprehensive. The final chapter deals with the diaphragm, diaphragmatic hernia, and the phrenic nerve. Herniæ are discussed thoroughly and the various methods of approach and of closure; phrenic evulsion is less completely discussed.

The second volume contains two articles. The first, Die Chirurgie der Lungen-erkrankungen, is by W. Jehn. It is clear, concise, and instructive. Space does not permit of details of technique of operations, but the article is well written and well illustrated. In the description of treatment of lung abscess no reference is made to the value of artificial pneumothorax or to thoracoplasty. Again, in the discussion on treatment of bronchiectasis, cautery lobectomy is not mentioned. The second article on Die Chirurgie des Brustkorbes, by A. Schubert, is admirable. It must certainly rank as one of the most complete and detailed articles extant on this subject.

Diseases of the Skin.

Seventh edition. By Richard L. Sutton, M.D., Sc.D., Professor of Dermatology, University of Kansas School of Medicine. In 2 vols. London: Henry Kimpton. 1928. With 1237 illustrations and 11 coloured plates. Pp. 1394. Complete 52*s.* 6*d.*

Although approximately 100 pages and illustrations have been added since the sixth edition of this important text-book was reviewed in these columns two years ago, the price remains the same, and we may fairly assume that there will be no diminution in the demand for it. Until a simple and cheap method of colour photography is available, no one could hope to better the illustrations in this work, while the text, the copious and orderly references, brought up to the latter half of 1927, afford a source of information as reliable and succinct as any work on modern dermatology. The author makes constant acknowledgments of the work of his American and European contemporaries.

No branch of the subject is neglected, and the photomicrographs of the various pathological conditions described are admirable. In an age when the clinical manifestations of syphilis are rarely seen in the out-patient departments of our teaching hospitals, the student requires some visual assistance from illustrations, and even the expert may occasionally require an ocular reminder of type. In this volume there are no less than 12 examples of extragenital chancres alone in the illustrations of the disease, while the clinical photographs from 85 actual cases of syphilodermata and congenital syphilis are supplied, excluding those devoted to the study of the histology. The increasingly important subject of ringworm is also treated exhaustively, both on the clinical and pathological sides. Some 50 illustrations accompany the text, and it is interesting to note that the author for the present, at any rate, expresses himself as being opposed to the recently introduced method of treatment by acetate of thallium for tinea tonsurans.

The rarer diseases, such as yaws, blastomycosis, sporotricosis, creeping eruption, favus, tinea imbricata, and many others are profusely illustrated. There are few errors or even faults of arrangement or method. One small point that might lead to confusion appears to have escaped the scrutineers of both the sixth and seventh editions. On pp. 1180 and 1267 respectively the treatment of tinea tonsurans and tinea unguium should have received the dignity of separate paragraphs, instead of being allowed to run into each other. There does not appear to be a reference to tinea unguium or even ringworm of the nails in the index. These are almost the only points to criticise in a splendid work which all dermatologists should buy.

Recent Advances in Physiology.

Third edition. By C. Lovatt Evans, D.Sc., F.R.S., Professor of Physiology, University College, London. London: J. and A. Churchill. 1928. With 86 figures. Pp. 403. 12*s.* 6*d.*

Three editions of this excellent book have appeared in three years. While adding two new chapters the author has wisely kept the volume to a handy size by omitting three chapters which appeared in earlier editions on hæmatology and cardiac output, which subjects are now clearly dealt with in standard text-books on physiology. The exploitation of physical methods for the study of excitability, chronaxie, and the nature of the nervous impulse is leading to discoveries of fundamental importance; a description of the technique and present position of these studies is presented in the two new chapters in that concise manner which can emanate only from the pen of an experienced worker and teacher. The value of the book is enhanced by the additions, and this edition, too, is likely to be exhausted as rapidly as its predecessors.

High Frequency in Oto-Rhino-Laryngology.

La Haute Fréquence en Oto-Rhino-Laryngologie. Second edition. By Leroux-Robert, Chief of the Physiotherapeutical Branch of the Laryngological Department of the Saint Louis Hospital. Paris: Masson et Cie. Pp. 216. Fr.26.

This book on the use of high-frequency currents in diseases of the throat, nose, and ear, was reviewed in our columns[1] on its appearance some three years ago. There is but little alteration in the second edition. One effect obtained by the high-frequency current—namely, diathermo-coagulation, or surgical diathermy—is largely employed by laryngologists in this country. The other forms include diffuse or medical diathermy, "effluve" or "violet ray," and sparking currents or fulguration; these the author uses in a large number of very various conditions, including ozæna, in which he claims to have obtained good results. At the experimental stage, in which this work must still be placed, it would have been helpful if Dr. Leroux-Robert had given a more exact statement of results, and had not been content merely to describe a few selected cases. The applications of surgical diathermy are dismissed with comparative, and rather disappointing, brevity.

[1] The Lancet, 1925, ii., 1287.

PUBLIC HEALTH LABORATORY PRACTICE.

By A. D. STEWART and T. CRAWFORD BOYD. London: Humphrey Milford, Oxford University Press. 1928. Pp. 306. 12*s.* 6*d.*

THIS work is stated to be intended for students taking the D.P.H. examination and for medical officers of health who carry out their own laboratory work. Without restricting the scope of the work, the authors have contrived to produce a book of convenient size by outlining only one method of analysis wherever possible. From the student's point of view this plan has some advantages. The descriptions are explicit and concise and are not interrupted by discursive text-book material—a common fault in laboratory manuals.

The book is evidently not meant for students taking an English qualification in public health. The legal standards for milk, butter, &c., are those of Bengal, although the more important recent English regulations relating to food receive mention. The contrast between Eastern and Western conditions is notably illustrated by the interpretation of results of water analysis. It is surprising to find no reference to plumbo solvency and plumbo-erosion in connexion with the scheme for detection of poisonous metals in water. From the detail accorded to oils and fats one gathers that the chemical analyses of these substances bulk very largely in Indian public health laboratory practice. It is perhaps also due to this Eastern bias that there is no reference to any method of measuring ultra-violet radiation and atmospheric pollution, problems of increasing importance to modern aggregated communities. Doubtless the manual is well adapted to the needs of students working in the East.

WASSERMANN REACTION.

Die Technik Der Wassermannschen Reaktion und die Technik und praktische Bedeutung der Sachs-Georgi-Reaktion, der Aktivmethode von Bruck, der Ballungsreaktion von R. Müller und der Trübungsreaktionen von Dold und Meinicke. Third edition. By Dr. AUGUST POEHLMANN, a.o. Universitäts-Professor und I. Assistent der Dermatologischen Universitäts-Poliklinik in München. Munich: Rudolph Müller and Steinicke. 1928. Pp. 131. M.6.40.

THIS small volume by Dr. August Poehlmann deals with the technique of performing the Wassermann reaction, includes also sections on the Sachs-Georgi reaction, the Ballungsreaktion of Müller, and the flocculation reactions of Meinicke and Dold. The first part contains a fairly complete summary of the continental literature on the subject of the Wassermann reaction, but the author appears to have ignored practically all the English work; this part of the book is likely to be of greater use to continental workers than to the English reader. This does not apply to the section on the Sachs-Georgi reaction. The subject seldom receives much attention in English text-books, and the description given here, though somewhat brief, is adequate; the same may be said of the flocculation reactions of Meinicke and Dold which appear to have some value though not often employed in this country. The manual should be found useful by laboratory workers.

CHEMISTRY AND MEDICAL PRACTICE.

Recent Advances in Chemistry in Relation to Medical Practice. By W. MCKIM MARRIOTT, B.S., M.D., Dean and Professor of Pediatrics, Washington University School of Medicine; Physician-in-Chief, St. Louis Children's Hospital. London: Henry Kimpton. 1928. Pp. 141. 10*s.* 6*d.*

THIS volume consists of a series of six lectures delivered at the San Diego Academy of Medicine in 1927. The first deals with the fundamental principles of chemistry, describing the nature of atoms and molecules, and ends with a few paragraphs on osmotic pressure and colloids. Lecture II. is concerned with acidosis and alkalosis, and the author discusses these conditions from the clinical rather than from the academic point of view, in accordance with the title of the book. Following this lecture is one on the chemistry of the blood, which again provides only a very general outline of the subject, leaving untouched all the technical details usually connected with it. Two lectures are devoted to food and metabolism, the second being concerned chiefly with vitamins and diet. Here as elsewhere the book suffers from lack of references. Often the discoveries discussed in the text do not even bear the original workers' names; for instance, in Lecture V., the fat-soluble A-vitamin is referred to, and we are told of the splitting up of this factor into vitamins A and D—in other words, the separation of the growth-promoting vitamin and the antirachitic factor—but there is no reference at all to the workers who first recognised that these are two fat-soluble vitamins. Again, on p. 111, where reference is made to the exposure of the unsaponifiable fraction of oils to ultra-violet light in order to produce the antirachitic vitamin, no mention is made of the names associated with this work. In the preface the author explains that only general principles are dealt with, since he hopes to rouse the interest of the reader who can then refer to more detailed works on the subject. It is not easy, however, for those without special knowledge to find further information without the clues which the names of the original workers provide. The last lecture of the series, on endocrines, is somewhat superficial, and gives only a very sketchy idea of the history and functions of the various hormones; but here, at least, the names of the pioneers and of some of the principal workers in the field are mentioned, and it would be difficult for the reader to follow up the subject. The lectures deal with a very general aspect of chemistry and summaries of well-known work in a manner well adapted to capture the interest of the general reader. It has the great merit of being accurate in those details which are supplied.

New Inventions.

AN IMPROVISED DROP REGULATOR.

IT is perhaps not too much to claim that a drop regulator for controlling the flow of saline and glucose solutions in proctoclysis, and of various antiseptic lotions in the continuous irrigation of septic wounds, is one of the most important pieces of apparatus a ward can possess. I write this note to call attention to the ease with which a dropper can be improvised out of materials readily obtainable anywhere. In essential features the contrivance consists of a small length of glass tubing drawn to a point at one or both ends, some two-thirds of its length being inserted into another small piece of glass tubing of slightly larger diameter. Rubber tubing is then affixed to the ends of the outer piece of glass tubing and a stop-cock regulator attached to the tube on the reservoir side. In practice the apparatus is made up as follows:—

Take the tapering end of a pipette, or an empty ampoule filed off at either end—preferably one thinning out both ways because it is easy to file, such as the saline ampoule of an electrargol set. This is snugly fitted into a short length of glass tubing by means of a thin rubber collar, if necessary, outside the pipette-end or ampoule to make up for any disparity between the outer and inner tubes. All that now remains to be done is to connect rubber tubing to either end of the glass tube and to provide a regulating stop-cock. The same idea may be carried out with an ordinary irrigating nozzle fitted into a filed-off test-tube and connected by a small piece of rubber tube where the base of the nozzle makes contact with the test-tube. There are many other simple variations of these devices which will suggest themselves according to the variety and calibre of the glass tubes available.

Colombo. R. L. SPITTEL, F.R.C.S. Eng.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 24, 1928.

WHAT IS A GOOD RADIOGRAM?

IN the medical world there is generally a question of the day, when a particular operation or line of treatment or diagnosis is being decried by some and as warmly defended by others. At present radiology is holding the stage. As there is a certain section of the lay public which prefers a medical attendant with alcoholic tendencies on the ground that "he is so clever when sober," so there is in the medical profession a section which blindly follows the result of an X ray examination and believes as it were in a radiogram per se, not knowing whether it is good, bad, or indifferent. This attitude of mind leads to many mistakes and produces much indifferent work. Sir THOMAS HORDER is credited in the lay press with having stated at the Congress on Radiology that the consulting rooms are flooded with bad radiograms. Our own reporter's version of his remarks (see p. 1077), is to the effect that the contribution made by radiology towards the diagnosis of alimentary disease would be even greater than it is if the standard of radiograms were raised. A number of indifferent radiograms might well be exchanged for one or two good ones. The question then arises as to what constitutes a good radiogram. It is easier to say that a bad radiogram is one in which some variation from the normal is not shown owing to want of reasonable care or knowledge on the part of one or other of the persons concerned. But does the onus of a bad radiogram rest entirely on the radiologist? We venture to think not. Other possible culprits, assuming that first-class modern apparatus is used, can only be the patient, and the physician or surgeon at whose request the work is undertaken. The person advising an X ray examination should pass on to the radiologist a tentative diagnosis and such information as will be of use to him in carrying out his part of the work. It is not fair to present the patient to the radiologist in the light of a cross-word puzzle with only the clues present; rather as much as possible should be filled in, and the radiologist asked to complete the missing letters in the light of his special knowledge and opportunities. Opinions differ as to whether a second detailed history should be taken by the radiologist. Some believe that this is desirable on the ground that important points may be elicited which were not mentioned by the patient at the first examination. Such a procedure does not appeal to us. Provided he is furnished with the main facts of the case, as he has a right to be, the time of the radiologist is better employed on his own specialised work. The 15 to 20 minutes so saved may allow of another good look at a doubtful duodenum or an extra film from a different angle. It does not appear right or courteous to send a patient for radiological examination with such captions as "X ray right leg" or "barium meal"; the addition of "? Potts fracture" or "suspect duodenal ulcer" at once focuses attention on the immediate problem. The radiologist is a consultant in the light of his specialised knowledge, and it is surely common sense to work up his case for him so that the greatest use may be made of his powers. The preparation of the patient for special X ray work should be dictated by the radiologist, for his technique is based on a definite preparation and variation from this may lead to error. Lastly, the radiologist must be allowed sufficient time (1) to carry out his examination and (2) to study his plates. Too often he is given 24 or 36 hours in which to administer and report on a barium meal, and is then held up to scorn by a chagrined physician when a ring carcinoma of the sigmoid is found some months later by a complacent surgeon. The radiologist is to blame in allowing himself to be led into such a false position.

The first essential, then, for a good radiogram is full coöperation between physician or surgeon on the one hand and radiologist on the other, before a plate is taken. With the patient the radiologist is bound to exercise his technical skill and his common sense to the utmost. He must be prepared with every legitimate trick of his trade to assist the colleague who has placed a patient in his hands for a special opinion. He cannot afford to confine himself merely to one line of approach, but must be ready to modify his technique as occasion demands. When using only so-called light meals little is learned about the peristalsis of the stomach, while if that organ is only studied fully filled the condition of the mucous membrane cannot be definitely ascertained. In alimentary work a great part of the bowel must be seen in all profiles, for many an ulcer is concealed in the ordinary antero-posterior view. The true character of a gastric papilloma can only be revealed when the patient is studied in various postures. Serial films will demonstrate a rigid piece of bowel and stereoscopic views help to establish the relative position of a shadow. The emptying of a viscus may be more important than the filling, and the completion of an alimentary X ray examination without an opaque enema often leads to disaster. This all takes time, and the radiologist must not be hurried. The man who runs through 20 barium meals in a morning will miss abnormalities picked up by his colleague who refuses to undertake more than four or five. A good radiogram, then, demands from the radiologist the highest technical skill, modified as the occasion demands, and it is generally one of a series, the others being used for purposes of comparison. There remains the most important point, interpretation, to which all the technical work has been preliminary. This again should be done in coöperation. Both sides pool their knowledge and a result so obtained is the one most satisfactory to the third partner—the patient. In work involving hollow viscera, both physician and radiologist should follow their case to operation whenever possible. To be told about it is not sufficient. Experience gained in this way is of the utmost value, for it is then seen what caused the shadow. Dr. BARCLAY told the Congress that if clinical, radiological, and operative diagnoses were compared, it would be found that there was more often agreement between the two latter than the two former.

A good radiogram, then, is one of a series, in the choice of which there has been coöperation beforehand, taken by a radiologist who has exerted his full powers, and interpreted with due regard to previous experience. In the case of a moving viscus it must never be forgotten, as Mr. WALTON remarked at the same discussion, that an X ray film is but a single photograph of a cinematographic performance. Only the watcher of the screen will see the whole plot, and conversely his eye may miss some of the things which the photograph fixes. There is still plenty of room for increased accuracy in diagnosis if radiologist and clinician work hand in hand.

THE NEXT STAGE.

LAST week we printed a summary of the explanatory memorandum on the provisions of the Local Government Bill and devoted special attention to the proposals for poor-law reform. There remain many other important aspects of the proposed changes which all who are interested in public health will desire to study. It must not be forgotten that the full view of those changes will not be revealed by the text of the Bill alone. The Government has evidently been anxious to leave the initiative in many instances in the hands of the present local authorities, and the "administrative schemes" which those bodies will be expected to submit to the Minister of Health will require close examination. The transferring of hospitals under the Bill raises a point in which the medical profession must take the keenest interest—namely, the imperative need of enlisting and retaining the collaboration of the general practitioner. We have to contemplate that, under the poor-law provisions of the Bill, the county councils will obtain control of almost every public institution in the county area. County councils and county district councils are at present responsible, and will remain responsible, for providing hospitals for infectious diseases. The county council will have to consider which of the existing institutions are suitable for infectious diseases hospitals and how best the existing deficiencies of accommodation can be made good. Clause 11 of the Bill, making consequential amendments of existing law, will give the county council the powers of a local sanitary authority for providing places for the reception of the sick and such provision is to include the conduct of normal labour, which the courts have held not to be included under sickness. The explanatory memorandum adds that Clause 11 also authorises county councils to subscribe to voluntary hospitals, but the Bill is not explicit on this point. The upshot of these arrangements will be that the county council must somehow evolve an orderly system in collaboration with other bodies. It must (under Clause 51) survey the whole accommodation for infectious diseases treatment in the county, put up an adequate scheme for the coördinated use of the hospitals, and arrange for the joint use of institutions owned by single authorities or the provision of additional facilities. If the district councils do not play their part in the scheme, the Minister may transfer their functions to the county councils; if the latter are in default, the Minister may make a scheme himself. All this surveying and unification is admirable enough, but neither the Bill nor the memorandum discloses how the medical personnel of the country is to be applied to the tasks set by the proposed legislative changes. In certain minor ways—for instance, in the insistence on progress towards a system of whole-time public health appointments—the general practitioner may begin to feel that his services and experience will not be welcomed. What steps are being taken to reassure him? We have to remember, of course, that the real campaign for the exposition of the Bill in Parliament and in the country has not yet begun. When the Minister brings to bear upon his immense task his well-known gifts of lucid statement, we shall hope to hear some definite suggestions as to the use to be made of the medical profession.

THE WHITE CELLS IN INFECTION.

THAT infection by the so-called pyogenic organisms is associated with an increase of cells of the neutrophilic granular polymorphonuclear order is so well known that there is a tendency to regard this granular leucocytosis as the only possible response of the white cells to infection. Some of these conditions, however, may produce blood pictures of quite another kind, and two of them, leucopenia and leucocytosis, have special diagnostic importance. The leucopenia of typhoid infection long since found its way into the text-books and lectures, though it is still not fully realised, perhaps, that it is of prime importance in the early diagnosis of enteric fever. The leucopenia of uncomplicated "influenza" is also fairly well recognised, and is one of the grounds for believing that this condition constitutes an entity. So-called catarrhal jaundice, again, is also usually associated with leucopenia.

In the above diseases the decrease of white cells mainly affects the granular leucocytes and thus gives rise to a relative lymphocytosis. In contradistinction to them there are certain other conditions characterised by an actual increase in the number of the mononuclear cells without diminution of the polymorphs; here the picture is one of lymphocytosis without leucopenia. Common, though not very striking, examples of this reaction are seen in measles and mumps, but the most arresting one is found in the condition now commonly known as "infective mononucleosis," whose identity with the "glandular fever" described many years ago by PFEIFFER may be taken as established. In this condition the number of white cells may rise to 20,000 or 30,000 per c.mm., and in extreme cases over 80 per cent. may belong to the mononuclear order. Studies of this disease have lately appeared both in France and America. P. CHEVALIER[1] finds none of the ætiological theories satisfactory, and he concludes that the evidence points to specific infection by an unknown agent. L. D. CADY,[2] of St. Louis, lays down certain diagnostic criteria, the most important of which, so far as the blood picture is concerned, are the absence of anæmia and the presence of the characteristic mononuclear cells originally described by DOWNEY and MCKINLEY.[3] These were placed in three classes, the most numerous and the most important for diagnostic purposes being somewhat larger than normal lymphocytes, with basophile cytoplasm and an eccentric and lobed nucleus. CADY remarks that although usually regarded as a disease of children infectious mononucleosis may occur at any age, up to 40 at any rate. J. F. COTTRELL,[4] writing from Philadelphia, has also observed a series of cases, and draws attention to the necessity of making the differential diagnosis not only from lymphatic leukæmia but also from Vincent's angina with agranulocytosis. In making a decision the recognition of Downey and McKinley's cells is of great importance. The absence of anæmia should exclude leukæmia and severe ulceration of the tonsils, with recovery of the characteristic fusiform bacilli and spirochætes in smears therefrom, will establish a diagnosis of angina. HERBERT FOX,[5] also working at Philadelphia, has studied the histology of a tonsil and of a lymph-gland from a case of infective mononucleosis. Both showed hyperplasia of the

[1] Sang, 1928, ii., 166.
[2] Amer. Jour. Med. Sci., 1928, clxxv., 527.
[3] Downey, H., and McKinley, C. A.: Arch. Int. Med., 1923, xxxii., 82.
[4] Amer. Jour. Med. Sci., 1927, clxxiii., 472.
[5] Ibid.

lymphatic cells, notably of the small ones but also to some extent of the large mononuclears of the germ centres. This worker applied the "supravital" technique of SABIN to the cells from the glands, and satisfied himself that the proliferating cells were actually lymphocytes. Whatever may be the source of the cells giving rise to the increased white count in infective mononucleosis the blood picture produced in man is strongly reminiscent of that seen in infection of rabbits by *Bacillus monocytogenes*, the organism described in 1926 by MURRAY, WEBB, and SWAN.[6] By the use of the supravital technique WITTS and WEBB[7] have demonstrated that the increased white cells in this condition actually are monocytes and not of the lymphoid order. Until the same has been done for the peculiar cells of infective mononucleosis their exact nature cannot be regarded as proved. In this connexion it is interesting to note that the avenue of infection by *B. monocytogenes* in the rabbit is the alimentary canal—a route which apparently remains unexplored in connexion with infective mononucleosis in man.

Both leucopenia and lymphocytosis may then represent a response to certain types of infecting agents, of which the bacillus of EBERTH and the unknown organism of infective mononucleosis may be taken as examples. It should be borne in mind, however, that under certain circumstances a leucopenia with a relative lymphocytosis may represent the only response possible on the part of a damaged or abnormal bone-marrow. A number of cases of leucopenia with lymphocytosis in the face of an acute infection involving the bone-marrow were described by S. C. DYKE[8] in our columns in 1924; and that the peculiar blood picture occurs quite regardless of the nature of the infecting agent was demonstrated by the fact that in three of them the infecting organisms were respectively a streptococcus, the tubercle bacillus, and the colon bacillus. There is some reason to believe that in such cases the bonem-arrow is abnormal to start with. Evidence in support of this view is contributed by VLADIMIR JEDLICKA,[9] who describes a patient who showed leucopenia or a poor polymorph percentage in the course of several acute infective conditions, finally dying from septicæmia with a white count of 15,000 cells per c.mm., over 80 per cent. of which were myeloblasts; the myeloblastic response in this case obviously represented the death struggle of a previously aplastic bone marrow. The general conclusion to be reached is that leucopenia or lymphocytosis or both in the course of an acute infection should give rise to consideration whether the peculiarity of the white count is due to the nature of the infecting organism or to some abnormality of the bone marrow. Sometimes the answer to this question may not be easy.

[6] Murray, E. C. D., Webb, R. A., and Swan, M. B. R.: Jour. Path. and Bact., 1926, xxix., 407.

[7] Witts, L. J., and Webb, R. A.: Jour. Path. and Bact., 1927, xxx., 687.

[8] THE LANCET, 1924, i., 1048.

[9] Sang, 1928, ii., 10.

EXTENSIONS OF BROMPTON HOSPITAL FOR CONSUMPTION.—Lord Derby, the President, last week opened new buildings and extensions of this hospital which have cost £40,000, less than half of which has yet been subscribed. The extensions provide a greatly enlarged and remodelled X ray department, a surgical unit of 25 beds, a new operating theatre, a new almoner's department, an enlarged nurses' home which will permit of the establishment of a preliminary training school, and other improvements. Since its establishment in 1841 the hospital has dealt with about 100,000 cases, and with over 4,000,000 out-patients.

Annotations.

"Ne quid nimis."

ULTRA-VIOLET LIGHT AND CANCER.

THE value of heliotherapy is now well established, and the general public is fully aware of the importance to the ordinary individual of an adequate amount of sunlight throughout the year. But, unfortunately, in this country we have too often to content ourselves with the belief that there is a sun still shining in the sky, ocular proof being denied us. In the quartz mercury-vapour lamp, however, we have an efficient substitute for the sun, or even an improvement on it, for the lamp emits rays which do not appear in the solar spectrum. The lamp is used extensively for therapeutic purposes, and is even employed prophylactically in the domestic bathroom, and except for an occasional burn no one appears to have been any the worse. In a communication appearing in another column, however, Dr. G. M. Findlay brings forward experiments which suggest that ultra-violet light may not always be beneficial in its results. He points out that since 1896 when Unna described under the name "Seemanshaut" the development of cancer of the skin after prolonged exposure to weather, evidence has been steadily accumulating that strong sunlight acting over a period of time may be followed by the growth of carcinoma in the exposed areas of skin. The incidence of this form of cancer is, of course, comparatively small, but there seems no doubt that it actually does occur. With these facts in view Dr. Findlay planned a series of experiments to determine whether ultra-violet light had any carcinogenic action on the skin. A series of mice were tarred on the back in the usual way, after epilation with sodium sulphide, and a certain number of them were also exposed for a brief period four times a week to the rays from a quartz mercury-vapour lamp. It was found that the mice which were exposed to the ultra-violet light developed cancer more rapidly than the controls. In another experiment ten mice were tarred and exposed to the mercury-vapour lamp for one month, ten other control mice being tarred alone for the same period. Both tarring and irradiation were then stopped. At the end of 36 weeks no tumours had developed in the control mice, but three of the irradiated animals had developed cancer, all, in fact, of those who survived, for the mortality among them was high. Finally, 20 mice were epilated and exposed to ultra-violet without being tarred. The mortality in this experiment was again high, but seven of the animals developed innocent or malignant tumours in the exposed area.

Dr. Findlay draws the conclusion that mice exposed to ultra-violet light for a period of not less than eight months develop papillomata or carcinomata. Also, that when a known carcinogenic agent is at work its action is hastened if the animals are also irradiated. And he holds that these experiments support the hypothesis that in man exposure to ultra-violet light plays an important part in the development of cancer of the skin in certain situations. While it is clear that these experiments must be amplified, the conclusions drawn from them appear to be fully justified, and they open up very interesting possibilities. It is true that no case has ever been reported of the development of cancer of the skin after irradiation with ultra-violet light, but it must be remembered that this method of treatment is as yet in its infancy. Various forms of chronic irritation are recognised as causing cancer in man, but except in rare instances they must act over long periods of time. As yet sufficient time has not elapsed for any untoward results of ultra-violet light exposures to declare themselves, if, indeed, they ever will. It is to be hoped they never will, and an alarmist policy is the last thing to be encouraged.

Nevertheless, it is well for us to be reminded that light is a very powerful agent which should be used with caution until we are better acquainted with its biological applications.

THE FIFTEENTH SESSION OF THE DENTAL BOARD.

THE autumn session of the Dental Board of the United Kingdom was a short one. In opening it Sir Francis Dyke Acland referred sympathetically to the loss through death of Sir James Hodsdon at the height of his powers, a man whose sagacity and judgment had been at the disposal of the Board and whose wise counsel had been sought in any difficulty. Sir Charles Tomes was one of the Board's trustees at the time of his death, and Sir Francis recalled with gratitude the help received from him in the formidable task of preparing his first address to the Board. He touched on the difficult question of the retention fee, remarking that the Board had fixed a really low payment for practitioners in their early years and thereafter one at which no one ought to grumble. He had come to the conclusion that although financial resources must be carefully husbanded for some years, the Board would not be unduly cramped either in continuing its present work or in starting upon certain new work which was in sight. In a few years the increase of fee income should allow of some expansion. The policy of assisting certain dental schools to provide better teaching, was, he thought, a useful lever for establishing dentistry upon the same plane as any other school of a University or for obtaining the independence due to a particular school. Whilst spending money in this direction the Board had been obliged to be less liberal than heretofore in granting bursaries, and in September last some applicants who might have received grants in previous years were turned down on financial grounds. There had been the usual variety in the type and age of applicants, and whereas in the past bursaries had been awarded to about four-fifths of those eligible for them, the proportion was reduced to about one-half. The progress of the bursars at dental schools continued on the whole to be satisfactory. Turning to disciplinary measures, Sir Francis referred to the new advertising mechanism of daylight signs as applied to dental premises. He proposed that the Board should adhere to the established principle that announcements of practice should be sufficient only to enable persons seeking a practitioner's premises to find them, and he added: "I can think of few cases in which a daylight sign should be necessary for this purpose." Since the last session of the Board the Irish Free State had passed the Dentists Act of 1928, following closely the lines of the Medical Act of 1927, and introducing into dental legislation two important innovations: (1) the obligation on all dentists to pay an annual fee, and (2) the entire prohibition of company practice in the Free State. Finally, he welcomed the probable lightness of their penal duties, a result due, he thought, in part at least, to the strong warning given last session with regard to a certain class of offence.

THE THERMAL STABILITY OF INSULIN.

IT is of some importance both to practitioners and pharmacologists to know what sort of variation, if any, may be expected in the activity of medicinal substances when kept for prolonged periods. For this reason an investigation of the Destructive Action of Heat on Insulin, by August Krogh and A. M. Hemmingsen [1] is of special interest. Their actual experiments were made at temperatures from 50° to 117° C., rather above probable storage temperatures. They were all carried out on sterile watery solutions of insulin of about 15 international units per milligramme buffered to pH 3·5 to 4·5, and the activity of the remaining insulin was determined either by the rabbit blood-sugar test of Marks or the mouse convulsion test described by the authors, which gave satisfactory concordant results. Decomposition was found to follow the course which would be predicted by the law of mass action, and on the whole was comfortingly slow. After 623 hours—nearly four weeks—at 50° C., about 60 per cent. of the original activity remained. At the higher temperatures action was naturally much more rapid; in fact, it was found to follow very well Arrhenius's relation between absolute temperature and the velocity constant. The points of chief interest from a medical point of view are that between pH2 and pH4 the rate of destruction is not appreciably altered, and that at temperatures likely to occur in ordinary practice the change is very slow, as the following table shows:—

		Time for the activity to fall.		
		5%	10%	50%
40° C.	= 104° F. ..	½ month ..	1 month ..	½ year
30°	= 86° ..	2 months ..	4 months ..	2 years
20°	= 68° ..	9 „ ..	1½ years ..	10 „
10°	= 50° ..	4½ years ..	8½ „ ..	56 „
0°	= 32° ..	29 „ ..	58 „ ..	377 „

These times are obtained by extrapolation below the temperatures of experiment and may, in some cases, be in error to the extent of 50 per cent. But they serve to illustrate the satisfactory stability of insulin under ordinary conditions.

LARYNGEAL TUBERCULOSIS.

OF this affection Sir Morell Mackenzie said in 1880 that "the prognosis is always extremely grave, and it is not certain that any cases recover." Since then, however, the outlook has very greatly improved, and it is important that this improvement should be realised, not only by the patients and their friends, but by all practitioners in charge of these cases. A feeling of despair prevents patients from seeking adequate treatment, and persevering in it, whereas the hope of final cure will be found to encourage many to persist in what is often a lengthy and tedious régime. That some degree of hopefulness is justifiable is shown by the experience of Dr. E. A. Looper and Dr. L. V. Schneider with 500 cases at the Maryland State Sanatorium in the past six years.[1] Of these cases 142 were classed as having "moderate lung involvement," and 358 "advanced lung involvement"; in the first group 108 patients, or 76 per cent., were "improved and healed," and of the second group 109, or 30 per cent. It is well known that the prognosis of laryngeal tuberculosis depends very largely upon the extent and the progressive character of the pulmonary disease; the class of case admissible at different hospitals and sanatoriums also varies greatly. Looper and Schneider do not define what is meant by moderate or advanced lung involvement, and do not seem to have adopted a definite method of classification, such as the Turban-Gerhardt. In these circumstances statistics have only a relative value, and, judging by the discussion that followed a reading of the paper at the Minneapolis congress, the percentage of cures is higher than that obtained by other laryngologists in America. In this country Sir StClair Thomson [2] reported 25 per cent. of cures at the King Edward Sanatorium at Midhurst, and Mr. Harold Barwell [3] about 21 per cent. at Mount Vernon Hospital, where cases admitted in an advanced stage for the relief of dysphagia were excluded from the statistics. Both these authorities agree with Looper and Schneider in insisting on the importance of periodic examination of the larynx in all cases of phthisis. The methods of treatment advocated are also those most generally accepted in this country and may be summed up as general sanatorium regimen, silence, and galvano-cautery puncture. Contra-indications to the last method of treatment are high temperature, marked asthenia, and high blood pressure; the American writers enunciate a sound

[1] Biochem. Jour., 1928, xxii., 1231.

[1] Jour. Amer. Med. Assoc., Oct. 6th, p. 1012.
[2] THE LANCET, 1924, ii., 948.
[3] Diseases of the Larynx. London. 1928.

principle, that no laryngologist should undertake electro-cautery treatment without the coöperation of a clinician, and they add that indiscriminate use of the cautery in unsuitable cases will do more harm than good, and the method of treatment itself will thus be brought into disrepute. They give figures to show the beneficial results of treatment by the cautery. In the group of moderate involvement of the lung 65·5 per cent. had the larynx cauterised and were healed and 10·6 per cent. were healed without cauterisation; but many of the latter class were patients with more active disease whose general condition did not allow of this method of treatment. Statistical comparisons of this kind are thus obviously open to fallacy, but there is no doubt that galvano-cautery puncture is a valuable method of treatment in carefully selected cases. It is interesting to observe that experience in the United States agrees so closely with that in England. Looper and Schneider have done good service in bringing this method to the notice of their colleagues, for they rightly remark that it is surprising that this form of treatment is not more generally employed.

TRAUMATIC RETINAL ANGIOPATHY.

A VERY rare condition of the fundus, ascribed to a contusion of the skull, was described at the Heidelberg Ophthalmological Congress of 1910 under the title Angiopathia Retinæ Traumatica by Purtscher, of Klagenfurt. It was due, he suggested, to an effusion of lymph into the retina following a sudden rise of pressure in the cranium, a direct connexion being assumed to exist between the cerebro-spinal fluid and the perilymphatics of the retinal veins. A few similar cases have since been observed, and C. H. Chow, of Peking, adds another in the November number of the *British Journal of Ophthalmology*. It was the result of a blow with a cricket ball on the orbit and right side of the face. A week after the accident there was a patch of opacity along the course of the upper temporal vessels extending from the disc about 5 or 6 disc-diameters. There was considerable disturbance of pigment and an absolute scotoma corresponding to the lesion. Five weeks later there was extensive migration of the pigment from the outer retinal layers to the inner, when it was seen in the form of minute black dots apparently outside the sheaths of the retinal vessels. The author finds that in his case the pigment was non-hæmorrhagic and non-inflammatory, and that it was derived from the pigmented epithelial layer of the retina. The scotoma remained unchanged. A somewhat similar case has recently been reported with photographs of the fundus in the *Archives of Ophthalmology* by A. J. Bedell, of Albany, New York. No reference is given to any similar case reported in Great Britain.

THE INHERITANCE OF MIGRAINE.

ALTHOUGH not in itself a serious complaint, migraine in the aggregate ranks high as a cause of suffering and invalidity in the general population. It forms a readily recognisable symptom-group, and though its ætiology and mechanism of production is unknown, and treatment, prophylactic or curative, at the best unsatisfactory, there are certain features closely associated with it. Of these, a history of similar attacks in parents or other members of the family has been the subject of attention from time to time since as far back as the beginning of the eighteenth century. During that period the reported proportion of cases of migraine in which a parental history is obtainable has gradually risen until at the present time the view is held that in almost all instances a hereditary tendency is manifest. In a recent paper,[1] read at a joint session of Eugenics Societies in New York, Dr. William Allan has dealt with this aspect of the subject. He defines migraine as "any headache beginning in early life, recurring regularly or irregularly over a long period of years, without discoverable pathological process and without materially affecting the general state of health," and he then proceeds to associate his observations on the familial occurrence of the complaint with the laws of heredity originally propounded by Mendel. The few previous attempts of this nature have led to contradictory findings as to the dominance or recessiveness of the trait. This is not surprising, for where the character (migraine) is a subjective phenomenon not capable of mechanical measurements, and its allelomorph is not a definite character, but simply absence of headache, the usual criteria of dominance and recessiveness are impracticable. The observed figures can only be compared with the expected results, the character being first considered as a dominant and then as a recessive. In dealing with any hereditary trait, it is necessary to know the relative frequency of the factors concerned, and from these can be calculated the relative occurrence of homozygous dominants, heterozygous dominants, and recessives. A positive history of migraine in a sample of 282 men was obtained by Dr. Allan in 57·4 per cent., whereas in 384 females the incidence was 62·6 per cent. Using these results it is possible to construct tables showing the results to be expected in mass matings of various types. On the basis of a general adult population incidence of 60 per cent. Dr. Allan has constructed two such tables considering migraine first as a dominant and then as a recessive character, and with these he has compared the actual findings in his series of 500 cases. The genetic and statistical evidence presented by the author is in close accord with the results to be expected if migraine be regarded as a dominant unit Mendelian character. A possible source of error, however, lies in the figures collected for the incidence of migraine in the general adult population, from which the samples were taken. A percentage of over 50 seems surprisingly high, and it is a debatable point whether the definition of migraine which formed the basis of the investigation was not too broad.

[1] Archives of Internal Medicine, 1928, xlii., 590.

CONTROL OF MALARIA IN CENTRAL AMERICA.

IN presenting his sixteenth annual report[1] to the United Fruit Company which has immense activities in the development of Central America, Dr. W. E. Deeks, general manager of the medical department, admits that malaria is still their major problem. Dr. Deeks has himself contributed in no small measure, both by his own work and by the stimulating efforts of example, to the solution of the control and cure of the disease which stands across the progress of the company's work. In the present report the papers by Dr. O. T. Brosius, Dr. M. A. Barber, Dr. W. H. W. Komp, and Dr. N. P. McPhail on the special properties of quinine and plasmoquine in malaria are the most searching that have yet appeared, based as they are on a vast clinical material. As a result of these studies, Dr. Deeks sets out his conclusions as follows: (1) Quinine is specific against the schizonts of all kinds of malaria and these are responsible for the clinical symptoms. In acute cases it is still the drug of election, but in order to obtain prompt results, large doses (2–3 g. daily) must be given. (2) In acute cases the exhibition of quinine for short periods favours the appearance of gametocytes in the peripheral blood, either by driving the gametocytes from the deep viscera, or by creating an environment which causes the development of increased numbers of gametocytes. When developed under quinine administration gametocytes are viable. (3) Plasmoquine is mainly effective against gametocytes, but it has also a marked action in clearing the schizonts of the tertian and quartan types of malaria from the peripheral blood, while upon the schizonts of the subtertian type its action is negligible and apparently, as in Brosius's report, it does not prevent the development of blackwater fever. Moreover, it is not as

[1] United Fruit Company, Medical Department, 17, Battery-place, New York. 1927. Pp. 365.

effective in preventing relapses when administered alone as it is in combination with quinine. (4) Plasmoquine has a toxic action on crescents of subtertian malaria, and after a few doses mosquitoes feeding on infected individuals do not become infected. The use of plasmoquine thus, if this observation is confirmed, will be of great importance in malaria control. (5) If given in too large a dosage, or over too prolonged a period, plasmoquine may cause toxic symptoms. In a small percentage of cases there may be, as with quinine, an idiosyncrasy to the drug. The daily dosage should not exceed 0·06 g., and this should not be continued over a period exceeding six days unless the patient is under close observation. (6) The toxic symptoms are headache, giddiness, gastric distress, and cyanosis, and the drug may cause death. At the onset of toxic symptoms there is a leucocytosis and degeneration of the erythrocytes. (7) The administration of quinine in combination with plasmoquine apparently prevents the development of toxic symptoms and, because of this, and the therapeutic action of the two drugs on different phases of the parasite, they should always be given in combination in order to get the best clinical results. (8) Experience shows that for an adult the amount of quinine to be given daily in combination with plasmoquine depends upon the clinical symptoms. In chronic cases 1 g. daily will suffice; in acute cases 2–3 g. daily are necessary in order to obtain optimal results. (9) In ambulatory cases the daily dosage of plasmoquine should not exceed 0·04 g. in combination with 1–2 g. of quinine for a period not exceeding six days. Whenever possible all cases so treated should return for re-examination within three to four days after the course is completed.

HUMIDITY AND TUBERCLE.

THE high relative humidity which preceded the violent storms of last week had the usual depressing effect on those who cannot readily get rid of their superfluous heat. It seems that there are many people whose dermal organ is trained to react only to a small range of atmospheric conditions and who are easily upset by a dry wind or by moist stillness. While the devastating effect of these extremes is no doubt largely confined to those whose mechanism of heat balance is inefficient, a certain amount of evidence has accumulated as to the effect of rain-bearing winds on the health of the general population. In his last annual report to the Derbyshire Health Committee, of which a summary in other respects is given in another column, Dr. W. M. Ash records the results of an investigation into the influence of such winds upon cases of early phthisis in that county. The material analysed is a series of 306 first-stage cases which had been treated at the county sanatorium and followed up at their homes for four years after discharge. Dr. Ash comes to the conclusion that in Derbyshire, as Dr. W. Gordon found in Devonshire, and others have found in West Shropshire and elsewhere, there is evidence that patients with early phthisis die more often and recover more rarely when residing in exposure to strong prevalent rain-bearing winds than when residing in shelter from them. If these observations are of wide application they have their obvious bearing on the choice of sites for sanatoriums and for the residence of the individual tuberculous patient. Exact proof of this thesis is beset with a multitude of difficulties, suspected and unsuspected by those who have worked on the subject. The equation can hardly be solved where there are so many unknowns. A small but useful contribution, however, comes from the School of Hygiene and Public Health at the Johns Hopkins University, Baltimore, where two observers [1] have analysed the effect of high humidity and moderately high temperature on the susceptibility and resistance to tuberculosis in guinea-pigs. The result was in effect negative, for under the conditions of the experiment they found that the suceptibility and resistance of guinea-pigs to infection with a virulent strain of tubercle bacillus was no different at a temperature of 80° F. with 79 per cent. relative humidity, and a temperature of 69° F. with 45 per cent. relative humidity. These observers rightly remark that what is true of the guinea-pig is not necessarily true for other animals and human beings, especially in this case as the guinea-pig is originally a tropical animal; but the value of work of this kind is that it can be carried out under accurately controlled conditions, in which there are fewer unknown factors in the equation to be solved.

[1] Anna M. Baetjer and Linda B. Lange: Amer. Jour. of Hyg., 1928, viii., 935.

THE APPRAISAL FORM.

AN account [1] has reached us from America of a method of stimulating different forms of public health work which appears to have been used in some 200 cities during the past three years. It consists of a voluntary periodical stocktaking based not on the local need for civil health work, nor on the results of such work, nor even (except indirectly) on its quality, but on the amount of activity shown by the various local health agencies, official or voluntary. From a simple score card for dairies introduced in 1903 by the Health Officer of the District of Columbia and taken up by the Department of Agriculture, the idea of assessing health activity in this way developed in the United States through a series of more or less independent local schemes, some of which failed to fulfil any serious purpose through faulty methods of drawing up their schedules. The latest and most widely adopted form results from the joint efforts of the Committee on Administrative Practice of the American Public Health Association and of the American Child Health Association. It is issued by the former under the title of "Appraisal Form for City Health Work." The form is described as a document of 68 pages and the essential part of it—i.e., the scoring device—is divided into 11 sections, each section representing one of the common chief public health activities in cities. These are: vital statistics, communicable disease control, venereal disease control, tuberculosis control, prenatal hygiene, infant hygiene, pre-school hygiene, school-child hygiene, sanitation, including food, milk, water, and sewer control, laboratory service, and popular health instruction. Each of these is divided again into a number of "criteria," 131 in all, each with a numerical score attached to it. For instance, under communicable diseases come "nurses' visits per case diphtheria," and so forth; under tuberculosis, "clinic visits per 100 deaths," "cases reported per annual death"; under sanitation, "dwellings with sewer connexion per cent.," "milk pasteurised per cent.," and so on. An arbitrary standard of score was fixed, being based on the score reached by 25 per cent. of a group of cities in a preliminary trial. The assumption is obviously made, under several headings, that in no city all the cases needing treatment are reached; otherwise it is hard to see why it should count to a city's credit to have a high percentage of, e.g., tonsil and adenoid operations, or of heart and lung defects placed under a physician's care, or of glasses fitted or teeth extracted, all reckoned on the total number of school-children rather than on the relative need of the individual. One wonders, too, whether—even in American cities—the social class of the people concerned would not affect such scores as the percentage of nurses' visits or clinic visits in prenatal, infant, or pre-school welfare work, the percentage here again being reckoned on the total live births or pre-school population respectively. These and other points are, however, under consideration, and the need for changing standards and criteria is recognised. Industrial health measures and those for which the need is confined to special areas, such as malaria

[1] The Validity of the Appraisal Form as a Measure of Administrative Health Practice. By Philip S. Platt. Published by the American Public Health Association.

and hookworm control, are not as yet included. We note, too, that the preventive work done by the practitioner which so often goes unrecognised but is probably more effective than all the other measures, is so far completely left out of account, owing to the difficulty of getting any sort of records.

Among the uses claimed for this appraisal form are the auditing of a city's health resources and the provision of a definite goal, the measurement of progress year by year, the stimulation of individual health workers, and the encouragement of health agencies to keep better records. Moreover, it is naively suggested that it may serve to defend the record of a health officer on objective unbiased grounds when he is threatened with a political attack or removal. The total score obtained by a city is looked on as of minor importance compared to the value attaching to a methodical periodical self-analysis. The form is specially aimed at measuring the means to an end and not the results reached. Even if not misused, and no suggestion of unwise use of it has come to knowledge, it is not clear to us why the means should be preferred to the end as an object of measurement. Mr. Platt gives an analysis of the results obtained in applying the appraisal form to a group of 46 cities in 1926, referring also to a somewhat similar earlier trial on a group of 86 cities in 1923, and discusses in detail whether this form really measures what it sets out to measure, and the sort of revision that should be made. When the 46 cities are divided into groups according to their populations—these varied from 15,000 to 1,250,000, half being under 50,000—there is little difference between the high scores reached in each group, but much between the low ones; the lowest, as might be expected, are in the smaller cities. It would have been of some interest if the relation of total score to population had been given in more detail, since the figures suggest that up to a point (but not beyond it) health service provision increases with population; but it is unsafe to draw conclusions, for the 46 cities are by no means a random sample of American cities. The labour of making such a survey is not small. Mr. Platt estimates that the time for an individual to appraise a small or moderately sized city is one to two weeks, but in large or specially difficult cities it may take several months to finish the work, which involves scores of interviews and, where records are badly kept, much tabulation of raw data. It is debatable whether such labour is really spent to the best advantage, and whether the end in view would not be better served by the type of district survey provided by Mr. Mess's recent book, "Industrial Tyneside," lately reviewed in our columns,[2] rather than by this numerical marking system. The Tyneside method, though admittedly more laborious, incidentally fulfils all the aims of the appraisal form as well as providing an end-product full of interest and value instead of a numerical score. We doubt whether this particular method will be popular outside those communities which rely on local boosting and stunts such as "Better Cities Contests" to maintain the civic pride of their inhabitants.

Lady Osler, whose many bequests for the benefit of medical education are noted in another column (p. 1109), has left her house at Norham-gardens, Oxford, to the Dean and Chapter of Christ Church, to be assigned as an official residence for the Regius Professor of Medicine in the University of Oxford for the time being, or otherwise applied towards the endowment of that chair.

THE official report of the International Conference on Cancer held in London last July has now been issued as an imposing volume of nearly 600 pages. Some of the communications delivered at the conference have already been published in full in our columns or elsewhere, and, where this is so, only an abstract is printed in the report, which contains no illustrations other than charts. Its appearance will be welcomed by the delegates who had to choose which sections to attend, and even more by those unable to come to the conference at all. All the aspects of cancer were discussed from different points of view, and this record of the proceedings confirms the impression that the British Empire Cancer Campaign did a service to medical research in collecting a group of experts and inducing them to explain their experiences and exchange their views.

[2] THE LANCET, Oct. 27th, 1928, p. 876.

ON Saturday last Lord Mildmay of Flete, as Lord Lieutenant of Devon, opened the new Torbay Hospital which has been built to the design of Mr. H. Percy Adams. Founded in 1850, the original building has long been inadequate to the needs of Torquay, whose population has greatly increased of late years. As the site did not permit of expansion, Hengrave House and its grounds were purchased in 1924 from Mr. and Mrs. R. P. Kitson, who later added 7 or 8 acres as a gift. The donation of £100,000, since considerably augmented, by Mrs. Rowcroft, has made it possible to build on this site a modern hospital, including a children's ward, private wards, two operating theatres, and a maternity ward. Accommodation for out-patients is ample, and there is apparatus for electrotherapy and radiological work, including a supply of radium. An antenatal centre is to be added. By adaptation and additional building Hengrave House has been transformed into a nurses' home.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. E. L. Atkinson is placed on the Retd. List with the rank of Surg. Capt.

Surg. Comdrs.: J. H. B. Martin to *Egmont*, for R.N. Hospl., Malta; and J. D. Murphy to *President*, for three weeks' course at R.A.F. Medical Officers' School of Instruction.

Surg. Lt.-Comdr. H. Hurst to *Pembroke*, for Chatham Dockyard.

ROYAL NAVAL VOLUNTEER RESERVE.

Surg. Lt. (D) W. M. Bull to be Surg. Lt.-Comdr. (D).

Surg. Sub.-Lt. A. R. Thomas to be Surg. Lt.

ROYAL ARMY MEDICAL CORPS.

Capts. to be Majs.: E. F. W. Mackenzie, R. D. Davy, F. A. L'Estrange, and W. M. Cameron.

Capt. A. G. Harsant to be Maj. (Prov.).

Capt. G. Fleming is re-empld. under Art. 507 (b), Royal Warrant for Pay and Promotion, 1926.

J. A. Timoney and W. G. Harvey to be Lts. on prob.

C. P. Allen to be Temp. Lt.

TERRITORIAL ARMY.

Lt. R. W. Power to be Capt.

RESERVE OF AIR FORCE OFFICERS.

Flight Lt. J. W. Harper is transferred from Class Dii. to Class Di.

Flight Lt. Dumaresq Le Bas relinquishes his commission on completion of service, and is permitted to retain his rank.

INDIAN MEDICAL SERVICE.

Capt. Jagat Ram Kochhar to be Maj.

Lt. J. C. Lamont resigns his commn.

Temp. Capt. A. N. Duggal relinquishes his temp. commn.

CHRISTMAS MEDICAL TOUR IN THE FRENCH RIVIERA.—As already announced a medical tour is being organised by the Société Médicale du Littoral Méditerranéen from Dec. 27th to Jan. 7th. The itinerary includes a visit to Hyères, St. Raphael-Valescure, Cannes, Grasse, Nice, Beaulieu, Monaco, Monte Carlo, and Mentone. Particulars can be obtained from Mme. Juppé-Blaise, Federation of the Health Resorts of France, 1, Gordon-square, London, W.C. 1.

The Clinical Interpretation of Aids to Diagnosis.

A Series of Special Articles contributed by Invitation.

XII.—TESTS OF RENAL EFFICIENCY.

By G. A. HARRISON, M.D.,
CHEMICAL PATHOLOGIST TO ST. BARTHOLOMEW'S HOSPITAL.

I.*—GENERAL CONSIDERATIONS: UREA-CONCENTRATION TEST.

RENAL function tests, like other laboratory tests, must be regarded as an extension of the clinical examination. If the urine is free from protein, investigations of kidney efficiency are unnecessary. Theoretically, it is possible that gross kidney damage could be followed by complete scarring, and so the renal function might be deficient in the absence of proteinuria. In practice this state of affairs is so rare that it may be regarded as virtually non-existent. Proteinuria having been detected, an examination of the centrifugalised urinary deposit should invariably be made. If there are no cells, no casts, and nothing abnormal in the deposit, the proteinuria may be of no significance (intermittent proteinuria). If the deposit is abnormal, the kidneys should not be regarded as healthy unless subsequent careful and repeated observations have justified such a conclusion.

Tests of renal efficiency are relatively gross; they give results which do not differ from the normal until the damage is extensive, and involves some two-thirds to three-quarters of the total renal tissue. The finding of proteinuria and an abnormal deposit but "normal" renal function tests therefore indicates that renal damage lies somewhere between the zero and the two-thirds or three-quarter stage. Other essential points are: 1. Conclusions drawn from renal efficiency tests only apply on the day of the test; the investigations must be repeated at intervals as guides to prognosis or to treatment. 2. The efficiency tests may give a rough measure of the degree of damage; they give no indication of the cause or type of damage, whether nephritis, tumour, stone, or other lesion. 3. When interpreting reports, the possible influence of non-renal factors—e.g., a failing circulation—should always be considered.

The kidneys have three main functions: (*a*) excretory; (*b*) regulation of osmotic pressure of the blood; and (*c*) regulation of acid-base balance of the blood. Of these three the first is most readily tested, the last two being often influenced also by non-renal factors and requiring relatively more elaborate technique. Many methods have been devised to test the excretory function, but it is only necessary here to mention a few of the simplest and most widely used—viz., the urea-concentration test, blood analysis, and the dye tests.

UREA-CONCENTRATION TEST.

The object of this test, devised by MacLean and de Wesselow, is to force the kidneys to *concentrate* urea by flooding the blood with urea, and by withholding fluids for 8 to 12 hours beforehand.

Technique.

Performance of test in ward or patient's home. Nothing to drink overnight—e.g., nothing after 10 P.M. Next morning, at

5.58 A.M.: Empty the bladder completely. Label specimen "0."
6 A.M.: Drink the dose of urea.
7 A.M.: Empty the bladder again. Specimen "1."
8 A.M.: Pass urine again. Specimen "2."
9 A.M.: Pass urine once more. Specimen "3."

Place each specimen in a separate bottle and label each. The whole of the urine passed in specimens 1, 2, and 3 should be sent. A sample of specimen "0" will suffice.

Breakfast may be taken before or during the test, if desired, so long as it is a "dry" breakfast. No tea, coffee, milk, &c., is allowed. The test may be started at 6.30 A.M. or 7 A.M., or at any other convenient time in the early morning, so long as complete samples of urine are obtained at hourly intervals as in the above example, and so long as all fluids are withheld previously for 8 to 12 hours.

Urea prescription for an adult is:—

℞	Urea	15 g.
	Tincture of orange	1 c.cm.
	Water, to	100 c.cm.

The following dose of urea for children has been found satisfactory in practice.

Age in years.	G. of urea.	C.cm. of above prescription.
12 and over ..	15 ..	.. 100
8 to 12	12 ..	.. 80
5 to 8	10 (approx.) ..	.. 70
3 to 5	7½ ..	.. 50
1 to 3	6 ..	.. 40
Under 1 ..	4 (approx.) ..	.. 25

Laboratory Determinations.—Measure the volume of urine in c.cm. and estimate the percentage of urea in each of specimens 1, 2, and 3. The volumes are measured in order to detect excessive diuresis. The hypobromite method for the estimation of urea is sufficiently accurate for clinical purposes, in that only relatively gross variations in urea concentration have any significance.

Interpretation of Results.

(*a*) *Volume of Urine.*—If the concentration of urea is subnormal, the first thing to exclude is excessive diuresis. The volume of urine should not exceed 120 c.cm. (4 oz.) in the first hour or 100 c.cm. (3½ oz.) in the second and each subsequent hour. If the volumes do exceed these amounts, a low concentration is *not necessarily* indicative of deficient renal function, and it is advisable to repeat the test. Excessive diuresis is most commonly due to imperfect preparation for the test. Occasionally, in spite of withholding fluids for 8 to 12 hours previously, there may be excessive diuresis owing to release of water previously retained in the tissues. It is merely a matter of convenience whether the test be repeated on the same or on another day, there being no objection to giving a second dose of urea two or three hours after the first. If the urea concentration be good in spite of excessive diuresis there is obviously no need to repeat the test.

(*b*) *Concentration of Urea.*—The information required is the maximum concentration of urea. It does not matter whether this occurs in the first, second, or third hour. Usually the maximum is found in the second or third, but occasionally in the first hour. Normally, the maximum concentration exceeds 2·5 per cent., frequently being greater than 3 per cent. Figures between 2·5 and 2·0 per cent. may be regarded as within the boundary zone. Their significance should be carefully assessed in the light of all the evidence available, and if any doubt remains as to the efficiency of the kidneys further tests should be performed—e.g., an estimation of the blood urea. Figures below 2 per cent. generally indicate renal inadequacy, always assuming that the test has been properly executed.

Value of the Test.

On account of its simplicity the test has been used extensively in all branches of urinary disease. It is very useful in clinical work, and undoubtedly will reveal the presence of a serious degree of renal inefficiency in the vast majority of cases. There are, however, a few conditions in which it is apt to be misleading at first sight. Thus, in the purely hydræmic type of nephritis with chloride retention, but no nitrogenous retention, it gives normal results, and yet the patient may be at death's door. Again, in some cases of enlarged prostate the urea-concentration test has been normal before operation, and yet the patient has died from septicæmia or toxæmia 24 or 48 hours after prostatectomy. The test is a measure of the efficiency of nitrogenous excretion,

* Part II. will appear next week.

and of that only. We have no right, therefore, to expect it to give warning of septic complications.

The urea-concentration test is a provocative test. That is to say, by flooding the blood with urea an attempt is made to provoke the kidneys to excrete urea at higher concentrations than on an ordinary diet. It is possible that in a damaged kidney such provocation makes a call upon some of its "reserve." Possibly for this reason the urea-concentration test is more sensitive than many others, such as the blood-urea test. But that it is a comparatively gross test was shown by a case in which the urea concentration was perfectly normal, although one of the kidneys had been removed following a street accident. It would appear, therefore, that more than half the renal tissue may be functionless, and yet this test will yield "normal" results.

Special Articles.

THE UNIVERSITY OF LONDON: THE NEW STATUTES.

By PERCY M. WALLACE, M.A. OXF.

II.

THOSE readers of THE LANCET whose attention I may have had the good fortune to retain throughout the perusal of my three preceding articles (of September 24th and October 1st, 1927, and last week) will not have failed to perceive that the duties imposed on the Commissioners of 1898 and 1926 respectively differed very considerably. In the former case it was as though a sturdy youth, having skipped the difficult period of adolescence and attained manhood at one stride, had to be forthwith furnished with an entirely new suit. In the latter the man, twenty-eight years older, had justified his earlier sudden transformation, and was on the whole well content with his equipment, but his friends had observed that in some respects he moved constrainedly and was unable to do himself full justice; his suit must therefore be let out here and the linings strengthened there, and he must be further supplied with an additional cardigan for the better protection of his chest.[1] In less frivolous language, whereas the earlier Commissioners had to design a constitution and government almost from a new beginning, the later, working upon the organisation established by their predecessors, were called upon to enlarge its scope, to ease its methods, to re-dispose its material, and to re-adjust its machinery, with a special eye to the improvement of its financial administration.

My task in the present article will therefore be to indicate directly, with such comments as may appear helpful, those amendments of the constitution of 1900 which, in general conformity with the instructions of the Act of 1926, the Commissioners have embodied in the Statutes which they sealed on July 23rd, and which will come into operation as soon as they have been approved by the Privy Council.

They commence by declaring the "purposes" of the University to be "to hold forth to all classes and denominations, both in the United Kingdom and elsewhere, without any distinction whatsoever, an encouragement for pursuing a regular and liberal course of education; to promote research and the advancement of science and learning; and to organise, improve and extend education of a University standard." This definition is repeated from that provided by the Statutes of 1900, except that the final clause formerly ran:—"to organise, improve and extend higher education within the appointed radius." The amended phrase recognises that not all "higher education" falls within the province of a University; and by the omission of the concluding four words effect is given to the opinion of the Departmental Committee of 1924 that no area need be statutorily defined. As I indicated in my article of September 24th, 1927, there are at present three areas for different purposes of the University—two precise and one vague; this is a cumbrous complication, and the University may well be trusted to handle with common sense any matters upon which the question of area or distance may arise.

His Majesty in Council remains the Visitor, and the Chancellor, appointed by Convocation, the "Head" of the University. The Vice-Chancellor will continue to be elected yearly by the Senate, but this body will no longer be limited to election from within its own membership. The removal of this restriction was specifically recommended by the Departmental Committee on the ground that there might be occasions when no member of the Senate was peculiarly qualified to hold the post, or, being so qualified, was able or willing to devote the time necessary for the effective discharge of its duties. It is this extension of eligibility, we may presume, which has made compulsory—what has hitherto been only permissive—the annual appointment of a member of the Senate to act for the Vice-Chancellor in case of his temporary illness or absence.

The Principalship is also for the first time made a statutory office. Under the moribund constitution the Senate were empowered to appoint a "Principal Officer," not necessarily one of themselves, "to assist in the general government of the University," with "such title, powers, duties and salary" as they might determine; alternatively, they might assign such powers, duties, and salary to the Vice-Chancellor. From the very first it was obvious that in so huge and complicated an organisation no man could adequately perform at the same time the presidential and ceremonial duties and those attached to the control of a numerous administrative and financial staff. At the earliest possible moment after the reconstitution of 1900 a Principal was appointed as a whole-time salaried official, and, except for the period 1915–20, when owing to the stringency of War conditions the office was put into commission, this arrangement has continued down to the present time. From the year 1920 onwards the formal title of the incumbent has been "Principal Officer"; this awkward and occasionally ridiculous anomaly has now been swept away without remark, and the old designation, as known to other British Universities, receives authoritative re-establishment. The Principal is to be the "chief administrative officer of the University," responsible, under the decisions of the Court and the Senate, for the organisation and conduct of its financial and administrative business. He will be an *ex officio* member of the Senate and of all its Standing Committees, but is debarred from membership of the Court and of the governing body of any School. It will be his "right and duty" to advise the Court and the Senate on all matters affecting the policy, finance, government and administration of the University, with unrestricted rights of attendance and speech at Meetings of all bodies, executive or advisory, charged with the consideration of these matters, and authority over the staffs assigned to them. The present Principal Officer is to be the first holder of this reconstituted and enlarged office, with a salary at least equal to that attached to his original appointment.

So much for the chief officials. We now come to the bodies to which will be entrusted the government and administration of the great machine.

I referred just now to the "Court." This term, however, does not designate a body similar to those that generally bear the title in modern English Universities. As I stated last week, the Departmental Committee of 1924 pronounced definitely against the proposal made by the Haldane Commission that there should be a large body, of "about 200" members, in supreme control, specially charged with ceremonial and legislative functions. It is to the small body

[1] The paronomasia was not intentional, and I hope I shall be pardoned for letting it stand—an unconscious but not unhappy echo of the picturesque archaic terminology of my own University.

concerned solely with finance, for which the Committee suggested the title of "Council," that the Commissioners have transferred the more exceptional designation of "Court."[2] This body is to consist of 16 persons—the Chancellor, the Vice-Chancellor, the Chairman of Convocation, six persons appointed by the Senate from their own number, four appointed by His Majesty in Council,[3] two by the London County Council,[3] and one co-opted by the other 15 members. Appointments will normally (*i.e.*, as soon as the Court has got definitely into its stride after the necessarily shorter tenure of most of the original members) be for five years. The Court will elect its own Chairman. It is to have "the custody, control and disposition of all the property, funds and investments" of the University, with full authority in respect of leases, loans, and contracts. It will be in control of all financial matters, with "power to determine finally any question of finance arising out of the administration of the University or the execution of its policy," subject to the proviso that, before determining any question of finance which directly affects educational policy, it must take into consideration the views of the Senate thereon. It is to be responsible for all measures "necessary or desirable for the conservation or augmentation of the resources" of the University, and is to check action or liability accordingly. It is to represent the University in all negotiations for grants from public bodies, and without its consent no School (except in the Faculty of Theology) is to be permitted to receive such grants, make public appeals for money, or accept benefactions which might in its opinion become onerous. It is to "determine the allocation of all funds at the disposal of the University," with the stipulation that, in respect of the Senate's own "central activities" (under suitable heads and sub-heads) and the expenditure by Schools "as part of their general income," recurrent grants are normally to be allocated in the form of block grants; and is also to appropriate at its discretion funds for the maintenance of the property of the University and of an adequate staff for its financial and administrative business. To enable it to carry out these duties fully and effectively, the Court is to be entitled to ask for any information it considers necessary from any body or official in the University and from the authorities of any School, and to prescribe the manner, form, and periodicity of all Accounts and Estimates.

The considerations which led the Departmental Committee to recommend the entrustment of financial supremacy to this new body were indicated last week, together with arguments that have been put forward in opposition. It only remains, in summarising more precisely the terms of reference to the Court embodied in the new Statutes, to repeat the confident expectation that, in spite of the unreasonableness urged by its opponents, the scheme will not creak unduly in the working, still less give birth, through lack of intelligent sympathy and good will on both sides, to a succession of embittered deadlocks. It may be presumed that in practice the procedure will be analogous to that which has for many years been observed under the obsolescent constitution—that no recommendation involving fresh expenditure will be submitted to the Senate by any Committee until it has received the approval of the Court, or, as may occasionally be found necessary, that any such resolution of the Senate will be specifically subject to such approval.

The Senate, though deprived of the ultimate control of finance, will remain the "supreme governing and executive body of the University in all academic matters," and except for that limitation (which, as has been suggested, may prove to be more in seeming than in substance) are charged to "take such measures and act in such manner as shall appear to them best calculated to promote the interests of the University as a place of education, learning and research." The constitution of this body is to differ in several respects from that prescribed for it in 1900. The Chancellor, Vice-Chancellor, and Chairman of Convocation remain, and, as already indicated, the Principal is to be added as a fourth *ex officio* member. Next in order are placed "the Heads [these generally bear the title of Principal] . . . of the following Schools"[4]:—University College, King's College, Bedford College, Birkbeck College, East London College, the Imperial College of Science and Technology, the London School of Economics, the Royal Holloway College, and Westfield College, provision being made, in the event of any of these ceasing to be a School, for the substitution of another School should the Senate consider this course desirable. Under a special separate clause, the two first-named Colleges are—in recognition, presumably, of their longer history and more comprehensive purview—to retain their exceptional representation on the Senate. In addition to their respective Heads, there is to be a member appointed direct by the University College Committee and one by the Council of King's College. It is to be observed, however, that the latter is the governing body not of the College as the term is generally understood (*viz.*, the original foundation without its Theological and its Advanced Medical Departments), but of its Theological Department, which, as has been already explained, stands now on its own feet as a School of the University in the Faculty of Theology, and has since the administration of the other Departments of the College was taken over by the University enjoyed the right of appointing a member of the Senate. The two prerogative institutions are thus to retain in a re-adjusted and not logically defensible scheme the special representation granted them by the Statutes of 1900, University College henceforth sending its Provost and an appointee of its Committee, and King's College its (secular) Principal and an appointee of its (theological) Council. Then come 17 representatives of Convocation; of these there are on the present Senate 16, the difference being due to the diminution by one of the graduates in Science and the addition of one each of those in Engineering and Economics—two categories that did

[2] No explanation is given of this alteration in nomenclature, but it is not difficult to conjecture to what considerations it was due. As will be made plain in the following paragraphs, the Court will stand *sui generis*, controlling finance, and in this province supreme. The Senate will be supreme in all academic matters, and will be advised by five Standing Committees, each known as a Council. Behind these will be the Faculties and Boards of Faculties, and behind them the Boards of Studies. Each rank in the hierarchy will thus have a distinct generic title of its own. The convenience derived from this obviation of natural misunderstandings in an intricate organism will be, in actual practice, very great. In the constitution of 1900 the University Extension Board stood correlative with the Academic Council and the External Council, but its title sometimes obscured this status through a mis-association with that of the Boards of Studies. A suggestion was recently made to re-name the two Councils the Academic "Board" and the External "Board" respectively; this would certainly have effected the due ordinance of the three chief Committees, and left the field clear for the Council (*tout court*) as the financial authority; but increased confusion with the Boards of Studies would have been in daily commerce an incessant source of irritation—far more serious than would be easily comprehended by those who have not been constantly concerned with the operation of so delicate a mechanism.

[3] The Treasury and the London County Council are the two largest channels of public financial support for the University.

[4] Constitutional purism may properly demur to the comprehension of University College and King's College in this category, as also to the special extension of the term "governing body" to include the University College Committee and the King's College Delegacy. Upon incorporation in the University both these Colleges surrendered their independent existence and autonomy, and came under the control and administration of the Senate, the immediate supervision of the work of each being, as I explained before, entrusted to one of its Committees acting on the spot. But the Commissioners were in this regard bound by the specific declaration in the Act by which they were appointed that the term "governing body" was applicable to these two Committees; after that it would have been almost an affectation to refuse to the two Colleges the title of "School." From the point of view of practical convenience there can be no doubt that their inclusion in the terminology applied to the normal Schools is, however irregular constitutionally, an innovation of manifest advantage.—It may be noted, as a survival of the former indication of their peculiar status, that these two institutions are still officially designated "University of London, University College" and "University of London, King's College" respectively, in contradistinction to the style "Guy's Hospital Medical School (University of London)," "Westfield College (University of London)," formally prescribed for the normal Schools in the several Faculties.

not exist at the date of the promulgation of the Statutes of 1900. The number of Faculty members, otherwise remaining unaltered, is also increased to 17 by the allocation of an additional representative to the Faculty of Engineering—in recognition, no doubt, of the development of its work during the past twenty-eight years and its obvious division into the two branches of Civil and Mechanical Engineering and Electrical Engineering.

Such of my readers as have not already learnt the facts from another source will at this stage have observed with dismay that no Medical School appears in the foregoing list of the Schools that are to be represented on the Senate by their respective Heads. This category is confined (except in the case of Westfield College) to such Schools as have been admitted in two or more Faculties, and have thus a larger institutional stake in the University than the one-Faculty Schools in Theology and Medicine. But these two classes are manifestly not on a level in being so described. Theology may fairly be regarded as one subject. But the organisation and control of medical education occupies so prominent a position in the history and structure of the University, and is concerned with so varied and extensive a *clientele*, that the Commissioners have specially allotted to the General Medical Schools,[5] acting in common, two representatives on the Senate, to be elected from among themselves by their own Deans (or other "chief executive officers"); moreover, in the event of one of the first-named nine Schools falling out and no other School being substituted for it, the Senate are specifically empowered at their discretion to fill the vacancy so caused by increasing this joint representation of the General Medical Schools from two to three. This representation is, of course, in addition to the three Faculty members who are continued from the scheme now on the eve of supersession. Thus on the new Senate there will be two representatives of the graduates in Medicine, three of the Faculty of Medicine, and two (possibly three) of the General Medical Schools which are for the time being Schools of the University. The membership is to be completed by the co-optation by the rest of four (in certain circumstances five) more persons, not necessarily members of the University.

Such are the retentions on and additions to the Senate. The bodies which lose representation are the Crown, the Royal Colleges of Physicians and Surgeons, the four Inns of Court, the Law Society, the Corporation of the City of London, the London County Council, and the City and Guilds of London Institute. With regard to these it may be remarked that the four Crown members and the two County Council representatives will now have their place on the Court; the co-operation of the Royal Colleges, each of which sent two members, and of the Corporation and the City and Guilds Institute, each of which sent one, highly valuable as it was in 1900, is not essential now that the University has "found itself" and can walk alone; and the disappearance of the Inns of Court and the Law Society seems a natural consequence of the failure of the legal profession to co-operate with the Senate in the establishment of a great School of Law within the University, as mentioned by me in September, 1927. On the general question it may be presumed that the Commissioners have acted upon the opinion expressed by the Departmental Committee that there is "no justification for the system whereby so many Senators are nominated by bodies none of which has an organic connexion with the University and most of which have no similar privileges in other universities." The total membership of the Senate will thus be 54 (or 55 if the Vice-Chancellor is elected from outside); this is a larger number than that recommended by the Departmental Committee, who had urged a reduction from the existing 56 to 49; but the Commissioners have been led to prescribe the increase by their conviction of the urgent desirability of providing for ample representation, not only of the graduates and the teaching staff, but also of the chief administrative units within the University. Apart from the 13 who occupy their seats by virtue of their positions, members will normally hold office for four years.

The Senate will be "supreme . . . in all academic matters," and is authorised to delegate any of its powers to any Standing or other Committee, with or without power to such Committee to sub-delegate such powers to any subordinate Committee. It may be presumed that, until it has thought out a coherent scheme of delegation, it will continue the present practice of receiving Reports from its Committees and adopting definite resolutions after consideration of the reasoned advice thus put before it.

There are to be five Standing Committees, the membership of each of which is in greater or less degree governed by Statute, the completion lying in the hands of the Senate, who are not confined in their appointments to members of their own body.

Priority of place is, as hitherto, accorded to the Academic Council, which will consist of the Vice-Chancellor, the Principal, the 17 Faculty members, and nine other persons appointed annually by the Senate, who in making these appointments are to have regard, *inter alia*, to "subjects of study and academic interests not otherwise represented" on the Council, and to take into consideration any views laid before them by any Board of Faculty, Board of Studies, or other analogous body. This Council is to advise the Senate, and where authorised to take executive action, in respect of the various matters that fell within the purview of its predecessor—the admission of Schools; the establishment, duties, and remuneration of Professorships, Readerships, and Lecturerships "of the University"; the recognition of Teachers; degrees, curricula, and examinations for Internal Students, and academic work generally. It will also be concerned with the constitution and *personnel* of Faculties, Boards of Faculties, and Boards of Studies, and with the regulation and co-ordination of their work.

The External Council is to consist of the Vice-Chancellor, the Principal, the 17 Convocation members, and nine other persons, in whose appointment the Senate are to have regard, *inter alia*, to "the adequate representation on the Council of the views of public educational institutions at which substantial numbers of students follow courses of study for the External degrees of the University"; this novel feature should prove most beneficial if it keeps the Senate in touch with the conditions and experience of the provincial Colleges and other institutions "not carried on for private gain or profit" which are vitally concerned with the special problems of this department of their work. To this Council the Senate will similarly look for advice and action regarding External Students—their degrees, diplomas, syllabuses, facilities for study, guidance, and examinations.

We then come to the second of the main innovations introduced by the Commissioners in pursuance of the general policy of the Departmental Committee—the Collegiate Council. This body is to consist of the Vice-Chancellor, the Principal, the eleven (or more) Heads or chief executive officers of Schools who have seats on the Senate, together with "so many additional members as the Senate may from time to time determine to represent Schools or groups of Schools not already represented on the Council, such additional members to be, in the case of a single School, the Head of that School, and in the case of a group of Schools the Head of one of the Schools in the group to be elected by the Governing Bodies of the Schools in the group acting through their Heads." The chief duty laid upon this Council is to advise the Senate upon what the Departmental Committee described as "institutional and inter-institutional matters." The primary items of this category, as set out in the new Statutes, are the

[5] These are still, as in 1900, twelve in number, and need no specification in these columns. (For other—*i.e.*, non-"General"—Schools in the Faculty of Medicine see footnote 8 below.)

"appropriate and adequate share" to be taken by each School in the teaching work of the University and the most advantageous distribution among the institutions of teachers, equipment, and facilities for teaching and research; and special stress is laid upon co-operation for the provision of common courses of instruction, common examinations, and common facilities for original study and research and the interchange of teachers and students, and upon the organisation and extension of favourable conditions for social intercourse and recreation and the maintenance of "a high standard of conduct" among students. These objects are plainly of paramount importance if the University is to become in the amplest sense of the term an organic unity, having its work co-ordinated for the general advantage and its various resources conveniently, effectively, and economically utilised. There has hitherto been no statutory provision for the representation on the Senate or any other central body of any School other than University and King's Colleges, and even these have not necessarily been represented by their administrative Heads. Some other Heads of Schools and Institutions have from time to time been appointed to the Senate by the Crown or by one of the Faculties or by Convocation. But this indirect and accidental method is not adequate. Still less is the requirement met by the only occasions for conference among members of the several Schools actually provided by the existing Statutes—the meetings of Teachers on Boards of Studies and Faculties, for these are concerned only with such details as lie within the narrow limits of isolated subjects or hardly less isolated groups of cognate subjects. Such opportunities as Heads of Schools have hitherto enjoyed for the comprehensive and responsible discussion of the larger aspects of organisation and co-operation just enumerated have been those occasionally afforded by their own voluntary and uncorrelated efforts. Much therefore may be expected from this statutory recognition of a grave deficiency and provision for its redress. One example of what can be achieved in this direction is supplied by the partial adoption, to which I referred in my article of October 1st, 1927, of he scheme recommended by the Statutes of 1900 for the concentration of preliminary and intermediate medical studies.

Of the other two Standing Committees instituted by the new Statutes, the University Extension and Tutorial Classes Council and the Matriculation and School Examinations Council, it would not be relevant to say more in these columns than that they are charged, under re-adjusted organisation, with the supervision of those branches of the work of the University which are indicated by their respective titles—the former with what is known in another place as "extra-mural" study, the latter with the various avenues of entry to the University and the inspection and examination of secondary schools.

In addition to these five Committees of prerogative rank, the Senate will have power to constitute others at its discretion. Of this nature there were during last Session (excluding the Finance Committee and others whose work will now be otherwise provided for) no less than 25, dealing with such special subjects as the Goldsmiths' College, the Institute of Historical Research, the Diploma for Journalism, the Library, Military Commissions, Scholarships, Establishment and General Purposes, and so forth.

The eight Faculties remain as hitherto, except that it is definitely provided that every fully recognised Teacher shall henceforth be assigned to one or more, though (as at present) no person will be entitled to vote in more than one at Senatorial elections. They will continue to be available for consultation by the Senate or any of its Committees upon any matter at their discretion, but without any compulsion so to consult; and they will retain their present right to report of their own motion upon a number of subjects in which they are respectively interested. That this right has under the obsolescent Statutes been comparatively rarely exercised has been in some cases due to their cumbrous dimensions. For this special defect a remedy is now provided. The voluntary and tentative institution by the Senate a few years ago of Faculty Boards is now to be formally incorporated in the fabric of the University. The Senate are directed to appoint a Board of Faculty (as the title will run henceforth) for each of the Faculties of Arts, Medicine, and Science by name, and normally ("unless for special reasons they otherwise determine") for any other Faculty in which there are more than one Board of Studies; there may even be one appointed for any Faculty in which there is only one. It is not easy to predict with confidence the exact effects of an instruction so confusedly permissive; but, as the assignment of Boards of Studies to Faculties now stands, we may reasonably expect that in the near future only two (at most three) Faculties will remain without a Board of Faculty—those of Laws and Music (and possibly Theology), for, if variety of subject is to be taken as the criterion, it is not clear on what principle either Engineering or Economics should be excepted from the normally compulsory clause. It may be remembered that last October I mentioned that the Faculty Boards had been in some quarters regarded as an unnecessary complication of the academic machinery; now that they are to be invested with statutory authority and definite functions, they will of course enjoy an enhanced prestige. The business of each will be to advise the Academic and External Councils upon a number of matters within the purview of its Faculty—the scope and correlation of courses of study and examinations, the provision for teaching and research, the conditions of graduation and the award of certificates and diplomas, the *personnel* of Boards of Studies, and any other matters that may be referred to it. Each will consist of the Dean of the Faculty, all members of the Senate who are "members of or graduates in the Faculty,"[*] one representative (when the Senate think it desirable, two or more) of each of the comprised Boards of Studies, and not more than five other members of the Faculty to be appointed by the Senate on the nomination of that body.

In view of the range and importance of those matters in which the Academic Council at least will require the frequent assistance of these Boards of Faculties, and of the exceptional unwieldiness for regular consultation of the Faculty of Medicine with its present membership of over 400, it may be profitable at this point to consider how under the new regime the constitution of the Board of this Faculty will actually work out. The Dean and five to eight Senators will have seats *ex officio*. At the time of writing (and there is no reason to anticipate any noteworthy alteration in this matter) there are nine Boards of Studies within the Faculty—those of Preliminary Medical Studies, Intermediate Medical Studies, Advanced Medical Studies, Dentistry, Pharmacy, Hygiene and Public Health, Physiology, Human Anatomy and Morphology, and Pharmacology; in view of the comprehensive character of some of these, it may be presumed that the members under this category may number from 14 to 16. Then there will be from seven to nine of the members of the Senate (duplication will plainly be avoidable in normal cases); and there may (probably will) be five others. This gives a total membership of about 35—a number large enough to include for most purposes all specialised interests even in a Faculty

[*] In this phrase we find statutory warrant for that ambiguous signification of the word "Faculty" which has occasionally given rise in the terminology of the University to a considerable degree of misapprehension—not to say exasperation. Its primary, and according to the framers of the Statutes of 1900 its only strict, usage during the last twenty-eight years has been to designate corporately those individually selected Teachers who have been admitted by the Senate to membership of one or more of the eight electoral and in a limited degree advisory bodies bearing that title, as indicated above. In this Statute the term is also used—so conveniently as to be almost inevitably—to signify that department of undergraduate or post-graduate study within the University which in the case of successful students leads to a distinctive degree. There are of course other meanings of the word in other Universities—and in popular phraseology.

of such wide content, and yet not too large to preclude the probability of the regular attendance of a predominant proportion of the same persons—a most desirable feature in a body of this function. In this respect Medicine will share with Engineering (with four Boards of Studies) and Economics (with nine) a favourable position between Arts and Science (with 21 each) on the one hand and Theology (with three) and Laws and Music (with one each) on the other—for it is not only in the domain of logic that intension varies inversely with extension. If, as seems beyond question, these Boards of Faculties become a vital element in the academic structure, it is probable that, while such bodies as the Committee of the Medical Members of the Senate (to which the Departmental Committee referred slightingly as redundant, ill-conceived, and possibly unconstitutional) will cease to exist, the Faculties themselves will, save on exceptional occasions, be more and more limited in actual practice to their original function of periodically electing to the Senate the representatives of the teaching staff of the University.

The province of the Boards of Studies (at the present time 45 in number) remains generally the same as hitherto, except that the wording of the obsolescent Statutes specifically forbidding the Academic Council or the External Council to advise the Senate upon "any matter relating to courses of study, provision for teaching or research, examinations and the appointment of Examiners, or the granting of degrees or certificates of proficiency" without first taking the opinion thereon of the relevant Boards has been modified both in absoluteness of tone and in scope of application. But this does not really indicate any sacrifice of safeguards—it is merely a recognition that the Senate can be trusted in the matter of common sense. The normal procedure under the old dispensation will not be materially affected in any sense adverse to the dignity or authority of the Boards; they will continue to be consulted on all technical points, but there will no longer be the tiresome delays that have from time to time held up urgent business until some Board should have reported on some detail of procedure. On the other hand they may in future be called upon, within their respective spheres, to advise not only these two Councils but also any other Committee of the Senate (Standing or otherwise) or Board of Faculty, or even the Senate itself direct. The number of the Boards, which are to be appointed annually, is left to the discretion of the Senate; probably there will be no great change in the present Register. With regard to *personnel*, it is now specifically prescribed that, where practicable, each Board must include all the Appointed Teachers of its own subject or subjects and some of those of cognate subjects, also Recognised Teachers of and "other persons"[7] expert in such subjects or cognate subjects—the number in these two categories taken together not to exceed that of the Appointed Teachers.

The conditions that will govern the examinations for and the conferment of the several degrees are set forth in terms that, generally speaking, incorporate in the existing code such adjustments as the accumulated experience of the last twenty-eight years has shewn to be expedient. These do not require detailed analysis here, and it will be sufficient to mention, for such readers of THE LANCET as may not be aware of the fact, that, although it is under present conditions incredible that the Senate should ever desire to confer (as they technically may) the degree of Doctor of Philosophy in the Faculty of Medicine, they have added two to the traditional four (M.B., B.S., M.D., and M.S.) to which in that Faculty they were limited by the Statutes of 1900—those of Bachelor of Dental Surgery and Bachelor of Pharmacy, for the institution of which the approval of His Majesty in Council was obtained in 1921 and 1925 respectively.

Similarly, and finally, those of the new Statutes that deal specifically with the Schools of the University and its Teachers (Appointed and Recognised) do little more than consolidate the Statutes of 1900, as interpreted and expanded since that date by amendments designed to meet successive needs. Two points may, however, be noted as of characteristic interest. The first is the formal adoption of the system of Boards of Advisors as an integral feature of the process of "appointing" Teachers or of conferring the status or title of Professor or Reader—a merited tribute to the marked success that has crowned this device, of which I gave some account last October. The second must afford even livelier satisfaction to those who have striven and are striving to get the best possible work out of the machine entrusted to their hands. Among the further conditions upon which henceforth the Senate must statutorily satisfy themselves before admitting any institution to the grade of School[8] are the willingness of its governing body to leave in the hands of the University the conferment of the status or title of Professor or Reader upon members of the staff and to observe its requirements with regard to appointments to the higher teaching posts, the extent to which the teaching staff may take part in its management, and the adequacy of the provision made for recreation and corporate and social life. The relations of the University with its several Schools, and with the members of the staffs appointed by them both prior to the reconstitution of 1900 and since that date, have been of necessity so delicate, and grave divergences of view might so easily have arisen in regard to rights and privileges, that what we may take to be this agreed stabilisation on more intimate lines of a system honourable and profitable to all parties must be regarded as of most hopeful augury. It is, indeed, manifest that without such mutual confidence and genuine co-operation between the University and its Schools the experiment inaugurated twenty-eight years ago must have failed to realise the aspirations of those who devised it. That this central feature of the organisation should have proved susceptible of harmonious and equitable operation must be most gratifying and encouraging to all who wish well to the University.

For fuller details of the revised constitution those interested will consult the Statutes themselves. My part in this and the three preceding articles has been to indicate in outline, with illustrations mainly drawn from the medical department, how prolonged and how devoted have been the efforts of some of the keenest and most expert authorities in the country to solve a long-standing problem—*quantae molis* has been the endeavour to equip the capital of the Empire with a University worthy of her exceptional wealth in academic material and potentialities.[9]

[7] It may be presumed, though it is not precisely stated, that this phrase does not include members of staffs of Schools or Institutions that have not obtained recognition as Teachers, but designates experts who, having no such association with the University, are able and willing to assist its work by accepting appointment to its Boards of Studies.

[8] In addition to the twelve "General Medical Schools" (and University College and King's College in respect of preliminary and intermediate medical studies), the following are at the present time Schools of the University in the Faculty of Medicine (in some cases only for certain subjects or for limited periods):—the London School of Hygiene and Tropical Medicine, the Lister Institute of Preventive Medicine, the Royal Army Medical College, the Royal Dental Hospital and School of Dental Surgery, the Naval Medical School of the Royal Naval College (Greenwich), the Maudsley Hospital, Bethlem Royal Hospital, the School of Pharmacy, and the Cancer Hospital. There are a number of other Institutions at which there are Recognised Teachers in subjects comprised within the Faculty.

[9] In view of the special character of the *clientèle* of THE LANCET, I trust I may be allowed, in a final footnote, to call attention to a remarkable fact in connection with the tenure of the Vice-Chancellorship during the past twenty-seven years—that is, since the Senate were first able to exercise their free right of election (the first Vice-Chancellor under the existing Statutes having been appointed by the Statutes themselves). Election to this office has been annual, and the Senate have been obliged to elect one of their own body. Although the direct representation of Medicine on the Senate has been only nine out of a total membership (excluding the Chancellor) of fifty-five, the choice has fallen upon a Physician or a Surgeon on seventeen occasions out of the twenty-seven. From 1911 to 1924 the medical profession had an unbroken run.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Instruction in Sexual Physiology.

THE Edinburgh education authority has come to certain provisional and rather hesitating findings on instruction of children about the physiology of reproduction. The essential findings of the authority are:

(*a*) That a special meeting (or meetings) should be held once a year of parents of children above 12 years of age, other than those attending the transferred Roman Catholic schools.

(*b*) That a short list of pamphlets be drawn up and approved for the use of headmasters, teachers, and parents. Such pamphlets to be available for sale at the meetings, but not to be issued to the children.

(*c*) That should any parents express a desire for such instruction to be given to their children, it should be done only by such members of the teaching staff as are willing to do so, and in the opinion of the headmaster qualified, or by one of the medical staff—the instruction to be given in all cases by a person of the same sex as the child. No class instruction shall be given.

Prof. J. Y. Simpson, a member of the authority and himself a distinguished teacher of biology, suggested that biology should be taught in secondary schools, and in relation to (*c*) entered a caveat against the policy of limiting the kind of instruction and the types of person that should convey it. The decision of competence to teach in this field ought not to lie with the headmaster. The special committee concerned, it appears, considered "that the responsibility of imparting information as to the origin of life lies with the parents," and this is approved by the Committee on Religious Instruction. "At the moment it does not seem likely," the special committee continues, "that the primary schools will ever provide direct instruction in sex hygiene—at any rate, it cannot be given until public opinion recognises sufficiently the necessity for such instruction and exhibits confidence in the ability of responsible advisors of children to give the instruction needed." The committees display no sign of the suspicion that the vast majority of parents are too ignorant of sex hygiene to undertake, with safety, this work, even if there were not between father and son, or between mother and daughter, that well-known barrier of reticent delicacy in all matters of sex.

Pensions for Nurses.

In connexion with the Federated Superannuation Scheme for Nurses and Hospital Officers, a meeting of representatives of voluntary hospitals in Scotland was lately held at Glasgow. It was pointed out that a nurse, while she was working, had very little opportunity of saving anything, and there was an obligation on the community, who owed so much to her, to see that when the time came for her to cease working there should be some provision which would help her to live in comfort. The Federated Superannuation Scheme was a contributory scheme. It was national in its character, and had been framed to meet the needs of all hospitals, irrespective of their size. It was framed on the general lines of the federated superannuation system for universities. This scheme had the advantage that under it a nurse had the option when the retiring age came of receiving either a lump sum or an annuity for the remainder of her life. Moreover, if she so desired it, the benefit could take the form of an endowment insurance. The scheme was worked by means of assurance policies issued to each individual by well-known life assurance associations, so that there could be no doubt of its solvency at any time. One of the principal objects of the scheme was to provide that when members moved from one hospital to another they should carry their policies with them.

The Universities.

Prof. F. G. Banting, of London, Ontario, delivered on Oct. 31st his Cameron Prize lecture to a large audience of students and medical graduates at Edinburgh. Prof. Banting, who was awarded the Cameron Prize of 1927, told the story of his researches in detail and recounted the various experiments which led up to the discovery of insulin.

Mr. Thomas William Drinkwater, Ph.D., was recently entertained at dinner by the Royal College of Surgeons of Edinburgh, in honour of having completed 50 years as a lecturer in the School of Medicine of the Royal Colleges of Physicians and Surgeons. Sir David Wallace, presiding over a company including some 40 fellow lecturers and colleagues in the School of Medicine, said it was a unique event that a lecturer should have continued to hold classes for so long a period. After completing his medical studies at St. Thomas's Hospital, London, and at Edinburgh, Dr. Drinkwater qualified as L.R.C.P. in 1878 and almost immediately took up lecturing on chemistry. Besides conducting large classes, he was one of the earliest chemists to do analytical work in connexion with the public health movement, and he is still actively engaged in teaching and in chemical analysis for medico-legal work. He is a Fellow of the Royal Society of Edinburgh and of the Institute of Chemistry.

It is stated that of the 3978 students from outside the British Isles at British universities, Edinburgh has the highest number, 574, Cambridge being second with 546, Oxford third with 507, University College, London, fourth with 312, and Glasgow University fifth with 190.

The Problem of the Feeble-minded.

Dr. R. D. Clarkson, of the Royal Scottish National Institution, Larbert, lecturing to the City of Glasgow Society of Social Service on Nov. 9th, pointed out that mental deficiency was extremely difficult to define and the definitions in the Mental Deficiency Act were not helpful. The highest grade defined in the Act was that of the feeble-minded who were said to require supervision and control for their own protection, or the protection of others. In the case of children, the feeble-minded were those who were incapable of obtaining proper benefit from the ordinary instruction in elementary schools. It was agreed that about 1 per cent. of the children in the schools did not derive benefit, and on this basis it would seem that there should be about 50,000 in Scotland; but the number known to the General Board of Control was only about 3000. It was practically certain, however, that incapacity at school did not necessarily mean incapacity to earn a living in later life. Mental deficiency might arise—e.g., from disease or injury—in any family, and no distinct line could be drawn between the mental defective and the normal member of the community. It was probable that heredity did not account for a very large proportion of defectives. There was far too little institutional accommodation for defectives in Scotland, said Dr. Clarkson. Of the 3000 known to the General Board of Control about 1800 were in institutions, and of these only 634 were in institutions for adults. Experience at Larbert seemed to show that every training school for defectives should have an industrial colony in connexion with it under the same management, because defectives transplanted badly.

Dental Benefit.

In the third of a series of popular health talks at the Edinburgh Y.M.C.A. hall, Mr. Douglas Radford gave an excellent summary of our knowledge of diseased teeth. He pointed out that nearly every disease is influenced by the mouth being in a condition of suppuration, and often the degree of oral cleanliness decides whether the end of a serious illness is death or recovery. Such teaching should help to awaken interest in the maintenance of dental benefit under the National Health Insurance. At present it is, of course, only an additional benefit, though the dental profession put forward a strong case before the Royal Commission for making it statutory. This was not accepted and the large dental service, involving some £3,000,000 in England and £250,000 in Scotland, with

its Advisory Committee and inspecting and consulting officers, depends entirely on the allocated part of the surplus funds emerging at the last valuation of the approved societies. The allocation covers only five years, and at the end of this period the societies and central authorities will be faced with the alternatives of finding money to continue the service or of dropping it: for it is much less likely than it was that the next valuation will show a surplus equal to the last, if it shows any at all. The last reorganisation of responsibilities put more on the approved societies and less on the State grant. Hence these tears. It is time the profession were taking steps to preserve a service so well begun and recognised on all hands as one of the best developments tried under the Insurance Acts. It is monstrous to think that a service so far-reaching in its effects should be allowed to drop or to diminish merely because the so-called "surplus" may not emerge. Experience has proved that dental benefit and ophthalmic benefit are in very widespread demand, and it will be very poor statesmanship that fails to keep these services in being.

A Point of Law.

A curious point in procedure has arisen in the Lanarkshire Sheriff Court. The county council raised a case in its capacity as executive local authority under the Diseases of Animals Acts, the complaint being dismissed by the Sheriff on the ground that the Procurator-General alone had the right to institute proceedings. The Sheriff holds that, no express right being given to the county council by the Acts in question, none can be implied. It seems to have taken 30 years to make this discovery, which means that the county councils have not been very active. Perhaps the recent reforms in the duties of the Procurators have something to do with it.

The vital statistics of Scotland for the third quarter of the year 1928 show a birth-rate of 19·1 per 1000, a marriage-rate of 7·5, and a death-rate of 11·0.

In a report to the Selkirk education authority, Dr. G. M. Elliott, the school medical officer, says that in the early part of 1928 there was a paratyphoid epidemic in Galashiels. Thirty-six children of school age were affected. All these were affected at the same time, which was easily understood as the epidemic was caused by water infection. There were no deaths among school-children from this disease.

Colonel K. H. M. Connal, chairman of the Glasgow and West of Scotland Society for the Prevention of Cruelty to Animals, has issued an appeal on behalf of Animals' Week, which is being held in the city from Nov. 18th to 24th. Among the many activities of the Society he makes special reference to work among school-children. In the Animal Defenders' Corps, instituted two years ago for children of 10 years and over, nearly 33,000 children have applied for badges of membership.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Medical Certification of Insured Persons.

A SPECIAL meeting of the Irish Medical Committee was held on Nov. 14th, under the chairmanship of Dr. Joseph Power, to consider the proposals of the National Health Insurance Commission regarding an alteration in the method of distributing the funds available for payment for certification of insured persons. As has already been stated in THE LANCET, the Commission wishes to substitute the county for the dispensary district as the area of pool which constitutes the basis of distribution. Sir Joseph Glynn, chairman, and Dr. W. J. Maguire, medical member of the National Health Insurance Commission, with some members of their staff, attended the meeting of the committee, on the suggestion of Sir Joseph Glynn, in order to explain the proposal, and to answer any questions that might be asked. Sir Joseph, in stating his case, explained that the present method of distributing the funds by a dispensary area pool was cumbrous and difficult, and necessitated complicated calculation, so that the expense of distribution was more considerable than was justified unless there were distinct advantages in the present system which could not be retained by any other. He could find no such advantage. On the contrary, as the present method worked out, there were enormous and iniquitous differences in the payment rates for certificates issued. In the County Galway, for example, the rate for certificate varied from 1*s.* 5*d.* in one district to £1 in another. It was not uncommon in many counties to find in one district a rate for certificate six or eight times greater than in an adjoining district. This gross inequality he believed to be due to the fact that there was no accurate method of allotting insured persons to their proper dispensing districts. He had found it impossible to discover an accurate method of allotment or to establish a register of insured persons with their addresses. He understood that some medical men objected to the proposed change, but suggested a modification of his original proposal. He would be willing to take out of the county pools the towns or villages of a population of 2500 and over, and make them certification pools in the same way as urban areas of 10,000 and over are at present. In reply to Sir Joseph Glynn, it was agreed that the present method entailed more complicated book-keeping, but the committee was unable to believe that it was beyond the capacity of the staff of the Insurance Commission, with the help of the approved societies, to devise some method of establishing an accurate register of names and addresses. The objection of the committee to the proposed change was based on the grounds of efficiency. Some, at least, of the present inequality was due, not to inaccuracy in the allotment of the insured, but to laxity of certifying by certain certifiers. This laxity would be deprived of its chief check if the area of pool were increased. With a dispensary area pool, in which, as a rule, only two or three certifiers shared, each acted as a check on the others. But if the area of pool were enlarged so as to become the property of 20 or 30 certifiers, it would be impossible for any of them to exercise any check. A dishonest or careless certifier would largely increase his share at the expense of the careful certifier. Examples were given by several members present that their own receipts would fall by 50 or 75 per cent. On the withdrawal of Sir Joseph Glynn and his colleagues, a long dicussion took place, and the following resolution was unanimously passed:—

"That the Irish Medical Committee decline to recommend the acceptance of the proposal of the Irish National Health Insurance Commission for revision of the scheme for distribution of remuneration for certification of insured persons, as the proposed change is likely to interfere with the efficiency of the certification system, and that the Minister for Local Government and Public Health be requested to receive a deputation from the committee to discuss the question."

Irish Medical Committee.

Some other important matters were discussed at the recent meeting of the Irish Medical Committee. The committee had under consideration a letter from the medical practitioners of the City of Cork, pointing out that the appointment of whole-time medical officers of health for the borough and county was likely to encroach on the rights of medical practitioners generally, and especially those engaged in the work of specialists, for example, in eye, ear, and throat diseases, and orthopædics. The committee resolved:—

(1) That the function of the health authority should be confined as much as possible to the prevention of disease.

(2) That the work of the whole-time officer should be confined to administration and inspection, institutional or consultative.

(3) That health visitors and nurses should be definitely responsible to a local practitioner for patients dealt with by them, including expectant mothers; and

(4) That in the case of patients other than poor persons entitled to gratuitous relief they should be always referred to their usual medical attendant to make arrangement for their medical treatment.

The committee delegated to its executive sub-committee the preparation of evidence to offer to the committee of inquiry on the working of the Local Authorities (Officers and Employés) Act, 1926.

Dublin University College Medical Society.

The opening meeting of the Medical Society of University College, Dublin, was held on Nov. 14th, in the Physics Theatre of the College. Prof. M. R. J. Hayes, President of the Society, read an address on The Rôle of Radiology. He gave a survey of the applications of radiology in diagnosis and treatment in all branches of medicine and surgery. A discussion followed, in which Prof. T. G. Moorhead, Senator H. L. Barniville, Prof. J. M. O'Connor, and Dr. J. B. Magennis took part.

ROYAL SOCIETY OF MEDICINE.

ANNUAL DINNER.

ON Nov. 15th over 400 Fellows of the Royal Society of Medicine assembled to dine well and merrily together and, not least, to hear speeches from a statesman, a story-teller, and a man of science. Those who applied early enough to obtain tickets were fortunate indeed, for the Fellow chosen to thank these guests for coming delighted his audience, while the evening's entertainment included also a series of living pictures drawn with sure touch by their President. Lord Dawson lifted the curtain, for a moment only, on the periods when the ways of removing or alleviating pain by anæsthesia and by good nursing were revealed, gave a glimpse of the great men, past and present, commemorated during this year, noted an important recent discovery, and gave generously of the philosophy which his vast experience of medical practice has taught him.

The toast of the Society was proposed by Mr. WINSTON CHURCHILL. It was a great honour, he said, to be the fellow-guest of Mr. Rudyard Kipling. He had always been one of Mr. Kipling's greatest admirers, but the admiration had not always been reciprocal. Mr. Churchill praised the Royal Society of Medicine as one which, founded in the year of Trafalgar, had worked for the cultivation of knowledge of all parts of medicine and of the branches of science allied to it. It was just because of the unceasing expansion in the sum of human knowledge, spreading in every direction, that societies like this had now acquired a vital and essential position in the intellectual and practical life of the community. There was an increasing need of combining and focusing all the results of human study in each particular branch. The army was moving forward; we had to be sure that the furthest point reached by the most adventurous patrol at dusk was entrenched and occupied before dawn. The institution of a collective mind to cope with the knowledge which had long in its volume surpassed the capacity even of the greatest individual men was the principal reason which he would advance in proposing the toast of the Royal Society of Medicine. In its empiricism, in its continual contact with the unknown, medicine resembled in many respects the political profession. Every human being, every living body, he said, is an empire, with a population of many different races living in vast provinces under different conditions of pressure and time, subjected to accidents and misfortunes, and usually in a state of internal or external war. As long as the presiding genius, the central governing control, is seated firmly on its throne, order reigns and harmony prevails throughout the whole combination of this complex organism. But when the central power begins to weaken, or is ageing, or is opposed or undermined by any cause, sudden or gradual, then disorder, discontent, riots, mutinies, revolts, and revolutions break out. Mr. Churchill continued: "Those in our politics see some of the diseases with which medicine grapples. Communism is a form of cancer; it is political cancer, the revolt of a single cell which subverts and throttles those immediately around it and establishes a foreign principle of life within the body politic, a principle of life governed by laws unknown to the rest of the empire, manifesting itself by most violent symptoms, and requiring remedies about which there are great differences of opinion. Some say the knife; all are agreed that the remedies should be prompt and drastic.... We all know the danger—I certainly do—of intervention in the affairs of a foreign country. How can anyone know all the forces that are at work, the mysterious reactions which may follow from the application of any remedy? One hopes for the best, but this intervention in the affairs of a foreign State is exactly what every doctor has to do every time he prescribes for any patient. The resources of intervention are growing, but the variety of conditions is intricate. The Royal Society of Medicine is a sort of League of Nations, applying to the disorders of the State the remedies which comprise the collective knowledge and the concerted effort of all that has been achieved by all the organisations of mankind which are directed to the purpose of human welfare."

Having spoken about the doctor's troubles in dealing with the human body and the politician's difficulties in guiding the affairs of citizens, Mr. Churchill said that they were all together that night dealing with difficulties of the government of man, and he wished to give a word of advice to their patients. He would like to say to them: "Do not be in too much of a hurry to change trusted and sober-minded advisers, or to run after the latest quack who comes up with some potent cure-all specific to wave away the ills that have racked mankind since the dawn of time. No, let us carry on this steady treatment." Here, he felt, there would be entire sympathy between the medical and political professions.

Lord DAWSON, in response, said that the Society continued to grow in wisdom, in stature, and comprehensiveness. They were proud of having been able to show the way to the world of commerce in the conception and achievement of a "merger," and without the allurements of material gain. He would not attempt to recapitulate the achievements of medicine in recent times. But he would note, as illustrations of the great part the English-speaking world had played in the development of medicine, that the arts of anæsthesia and nursing—both embodying the quality of mercy—were, both as regards their origins and highest expressions, products of the English-speaking world. Reviewing the events of the past year, Lord Dawson referred to the celebration of the tercentenary of the birth of Harvey—which brought men of learning from the world over to this country. The most notable event of the festival was the fact that, as if moved by a common sentiment, the distinguished men of all countries with one accord acclaimed Pavlov their hero. This Russian genius had in the heyday of his manhood laid the foundations of much of our knowledge of digestive processes and paved the way for the surgery of the gastro-intestinal tract. Then came the war and the revolution in his country, and he became lost from view, and at one time it was feared, from life. Yet Pavlov kept the lamp of knowledge burning and there reappeared amongst us this year this heroic figure—old now in body, ever young in spirit—who gave us some of the results of years of patient research on that new subject of conditioned reflexes which he had given to the world of thought. Lord Dawson spoke also of the growing control of tropical disease, making the Empire safe for civilisation. The Commission of Inquiry into Yellow Fever not only illustrated that theme but showed the world the spirit of medicine at its best, and the

names of Adrian Stokes, Noguchi, and William Young would always be remembered with pride. Passing from action to thought and its trend, he instanced the recent discovery that by irradiation ergosterol becomes endowed with the qualities of vitamin D. Here we had got away from the cruder conceptions of bulk and weight and were concerned with those subtler imponderable physico-chemical changes which connote the word influence. They had seen an example of irradiation to-night in the eloquence of the Chancellor, inspiring and delighting the assembly. Medicine, with the steady move of its thought towards the threshold of disease, would in the future have closer contact with man—his work and his play—and would be more concerned with his inborn qualities, physical and psychical, and his environment, and less with external attacks. They were passing, in fact, from the age of acute to subacute infections, where the host counted for more, and would think of forces rather than lesions—passing from the static to the dynamic. So it would be with the statesman; his policy would no longer be decided, still less excused, by wars and pestilence, and would have its origin in the study of the people, their qualities and needs.

Lieut.-Colonel W. P. MACARTHUR proposed the health of the guests. He spoke with eloquence of Mr. Churchill's versatility, and then of Mr. Kipling's services in the cause of Empire. Mr. Kipling's pen had raised the word "Britisher" from a contemptuous epithet to a fine title. He was accounted a poet peculiarly English, yet his love of this country was set so deep down in the soil that he was sometimes more Englander than English, and his fairy people had their beginnings so far back in the twilight of the island that even in the title "Puck of Pook's Hill" the two essential words were pre-Saxon, relics of a language long gone by. The other guests who graced these festivities had won fame in very varied fields. Col. MacArthur concluded by admitting to a spirit of envy of all those present who could sit in the glorious assurance that they would not be called on to speak.

Mr. Rudyard Kipling's response will be found on p. 1061.

Sir ERNEST RUTHERFORD, who also replied for the guests, spoke hopefully of the future of research in medical and allied sciences. More money and more support would surely be available for this purpose, since it was becoming increasingly recognised that work on the basic sciences was necessary if any serious understanding of the functions of the human body was to be obtained. He believed that in the future every country in the civilised world would coöperate in an international attack on the diseases afflicting mankind. They would look to the British Government to join with other progressive Governments and to see that the problems were attacked in a proper and adequate way.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Monday, Nov. 26th, at 5 P.M., at the Medical Society of London, 11, Chandos-street, Cavendish-square, W., Dr. Donald Paterson will lecture on Some Problems in Infant Feeding; on Wednesday, the 28th, at 11 A.M., at the same place, Mr. Victor Bonney will give a "gynæcological talk"; and on Thursday, the 29th, at 4 P.M., Mr. J. F. Cunningham will give a demonstration at the Central London Ophthalmic Hospital. At 2.30 P.M. on Monday, the 26th, Dr. A. J. Whiting will demonstrate at the Prince of Wales's General Hospital, Tottenham. No fee will be charged for admission to the lectures or demonstration. Special courses are now being held in urology at St. Peter's Hospital, ophthalmology at the Royal Westminster Ophthalmic Hospital, neurology at the West End Hospital for Nervous Diseases (daily at 5 P.M.), and venereal diseases at the London Lock Hospital. During December there will be two courses only—in infants' diseases at the Infants Hospital (Dec. 3rd to 15th), and in dermatology at the Blackfriars Skin Hospital. Copies of all syllabuses and information about the General Course arranged by the Fellowship may be had on application to the Secretary at 1, Wimpole-street, W. 1. The complete list of special courses for 1929 is now ready.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are 1927 statistics of five administrative counties:—

Name of county and estimated (R.-G.) population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Infant and pre-school mortality.	Diarrhœa, &c., under 2 years.	Maternal mortality from childbirth.
Lancashire .. (1,800,300)	14·6	12·7	0·78	1·34	2·7	1·9	73/37	6·6	4·9
Essex .. .. (1,024,700)	16·2	10·8	0·80	1·41	2·0	1·7	51/24	4·2	3·4
Durham .. .. (996,600)	20·3	12·5	1·10	0·98	2·9	1·2	96/55	7·0	5·6
Derbyshire .. (621,000)	18·0	11·6	0·71	1·24	2·6	1·5	71/—	5·3	5·0
Hampshire .. (416,000)	16·9	11·9	0·78	1·59	2·0	2·1	48/27	2·1	2·7

Neonatal mortality is not given in this series of reports.

Lancashire.

Dr. J. J. Butterworth expresses some dissatisfaction with the slow progress made in the pooling of isolation hospital accommodation in the administrative county, which comprises 19 municipal boroughs, 82 urban districts, and 19 rural districts—120 in all. Some of the hospitals are efficient, many are unsatisfactory, and in many the existing accommodation is not fully utilised.

For the purpose of the Milk Act the council employs 30 part-time veterinary surgeons, resident in all parts of the country, who also perform the duties under the Diseases of Animals Acts. In 12 boroughs and seven other districts the services of veterinary surgeons are available for the inspection of dairy cows, but the county council confines itself to following up tuberculous milk samples. 372 such notifications were received from local authorities, and as a result 2056 cows were examined, but the number of tuberculous animals found is not mentioned. No. 4 Clean Milk Competition was held over a period of six months, but attracted only 15 competitors. The housing conditions in 11 of the districts are described as unsatisfactory or not good; in 84 districts a shortage is reported, and in 14 there was considerable or serious overcrowding. The houses erected by local authorities numbered 4363 and other houses erected with State assistance numbered 4898. The county council has an approved scheme under the Housing (Rural Workers) Act, 1926. Up to July, 1928, 18 applications for financial assistance were received, and grants amounting to £580 were recommended in respect of five. Of the other applications 12 came to nothing and one is under consideration.

An unusual outbreak of diphtheria was reported in a Heywood family. One child at the school clinic was found to have ordinary diphtheria, and of two children at home one had both eyes affected and the other, which was the original case, a diphtheritic discharge from the ear. There were 190 notifications of small-pox and one death was registered, in the person of a tramp, who died in the union workhouse unnotified. In Dalton-in-Furness, Padiham, and Whiston, where diphtheria of a virulent type was prevalent, immunisation was found useful. The notifications of enteric fever were 123 with 26 deaths. An outbreak in an institution for boys at Widnes caused 32 cases and the only article of food on which suspicion rested was

foreign currants eaten raw. The peak year for encephalitis was 1924, when there were 299 cases and 103 deaths. During the last three years the notifications have been 178, 159, and 107, and the deaths 98, 88, and 89. The midwives sent for medical help in 37 per cent. of their cases, and the total payments to doctors amounted to £12,154, of which, according to the scale adopted, £10,370 have to be borne by the county council. No recovery is attempted when the doctor is called in on account of the babies' eyes, and £94 was paid in respect of 87 such cases. There were 208 notifications of ophthalmia neonatorum and among the survivors there was one case of total blindness and two of impaired vision.

There were two prosecutions of handywomen, but both were dismissed by the bench. In the one case the witnesses did not adhere to their proofs of evidence and in the other case the handywoman, who was engaged, was sent for at 8.30 P.M., "as labour was imminent." The doctor engaged was not sent for until after 10.15, and when he arrived everything was over. The bench considered that the defendant had acted in the best interests of her client.

Essex.

Dr. William A. Bullough expresses his satisfaction that the Ministry of Health have agreed to the long-deferred scheme of building a central institution with 150 beds for women and children suffering from tuberculosis at Black Notley, near Braintree. The Ministry of Health have now given instructions that cases of tuberculosis cannot be regarded as cured until the disease has been quiescent for two years and arrested for three years in pulmonary cases and arrested for three years in non-pulmonary cases. This, of course, upsets the comparison with past years. A determined effort is now being made in Essex to keep in touch with the contacts of open cases of tuberculosis. A pink card is issued for each of such and passed on by the infant welfare officer to the school medical officer, and ultimately sent back to the tuberculosis dispensary, with a view to re-examination from time to time. The need for X ray plant at the sanatorium in order to facilitate treatment by artificial pneumothorax has been made good. An attempt is to be made to secure a more rapid diagnosis in the case of children suspected to be suffering from pulmonary tuberculosis by their admission to the Victoria Park Hospital, for the application of all the most modern methods. It is hoped that in a few years every parish in the county will be served by a trained midwife. Though in a few districts maternity hospitals may be useful, the main effort should be, says Dr. Bullough, to ensure a safe confinement in the home. More effort is needed to secure the treatment of the defects found in school entrants during the pre-school age.

Dr. Bullough comments adversely on the scattered house-building which is going on in several of the rural districts. He is also not too favourably impressed with the L.C.C. Becontree scheme. Under this scheme since the war 17,000 houses have been built or are in course of erection in what was up to April, 1926, a parish in the rural district of Romford. The population will soon be 85,000 and ultimately 130,000, and though excellent sites were reserved for industry no industry has been begun. Dagenham is therefore a dormitory town of low rateable value for London workers. "This type of town planning," says Dr. Bullough, "has very little to commend itself." An effort is being made to get the railway companies to improve the travelling facilities between East London and Becontree. The county council have an approved scheme for the Housing (Rural Workers) Act, 1926, and of 20 applications for assistance, seven respecting 14 cottages, received total grants of £895. Two applications were not approved and 11 were under consideration at the end of the year. Complaints were received during 1927, as in many previous years, of offensive smells in the Purfleet neighbourhood, blown across the river from the sludge lagoons of the West Kent main sewage works. The dumping of London refuse on the north of the Thames at Hornchurch has also given rise to many complaints. The refuse dumps are in the neighbourhood of the L.C.C. Becontree housing estate. The Ministry have been asked to hold an inquiry.

Durham.

Dr. Eustace Hill reports that the death-rate and infant mortality-rate were higher owing to bad climatic conditions in the first and last quarters and an unusual prevalence of influenza and respiratory diseases. The deaths ascribed to influenza numbered 496 as compared with 250 in the previous year. There were 5101 notifications of small-pox and 19 deaths were attributed to this disease, though the majority were complicated with other acute conditions. The Ministry issued regulations in January giving the county council special powers to provide hospital treatment, and these powers facilitated arrangements for pooling the available small-pox accommodation. Several patients were admitted to the Princess Mary Maternity Hospital, Newcastle, under the Puerperal Fever Regulations, but no request was received for a "second opinion," nursing assistance, or bacteriological examinations. There were 33 notifications of encephalitis and 37 deaths bearing out the truth of a previous statement by Dr. Hill that many cases of this disease are not notified.

The welfare medical officers report that the mothers do not bring the pre-school children to the centres in adequate numbers. A special dental campaign has been carried out through the centres by means of lectures, reinforced by slides, posters, and leaflets supplied by the U.K. Dental Board. The E. F. Peile Convalescent Home at Shotley Bridge has done good work for nursing mothers and their babies and pre-school children. After leaving the mothers are recommended to bring their children to the centres, but 27 per cent. failed to do so. Owing to unemployment much dried milk was supplied free at a cost of nearly £30,000. After the emergency feeding scheme ceased each applicant had to pay at least 1*d.* a lb. At the end of the year 5703 cases were being helped. There were 148 cases of ophthalmia neonatorum notified, and the health visitors reported 824 cases of inflammation of the eyes. The damage included one blinded baby, four with both, and one with one eye injured. There are now 74 nursing associations affiliated to the County Association. Hitherto the expensive method of sending patients to Newcastle for light treatment has been in operation, and it is now proposed to fit up the county sanatoriums with the necessary apparatus.

The housing problem remains acute; 200,000 people live in one- and two-roomed houses, the percentages of overcrowding among them being 76 and 56 respectively. Up to now the county veterinary inspector has only followed up information received as to tuberculous milks, but by this method 3286 cows were examined. The animals slaughtered for tuberculosis numbered 221, of which 69 had tubercle of the udder, 47 emaciation, and 99 other signs. The county council has now decided to appoint whole-time veterinary surgeons to carry out the various Milk Acts and Orders. The Sale of Foods and Drugs inspectors sent 40 samples of milk to be examined for tubercle, and six were found to be infected.

Derbyshire.

Dr. W. M. Ash describes the rapid progress recently made in the development of Bretby Hall Orthopædic Hospital. It was opened in 1926 and now is fully equipped for the treatment of 55 tuberculous and eight non-tuberculous cripples. The equipment includes an operating theatre and an X ray and light department. A fully qualified teacher and an assistant teacher have been appointed and Dr. S. Hoyte, F.R.C.S., is the orthopædic officer in residence. The building of a modern open-air block (a plan of which is given), with two 20-bed wards and one 10-bed ward, has been begun, to accommodate 50 non-tuberculous cripples, while plans for another open-air block to accommodate 32 adults suffering from non-pulmonary tuberculos's

has been approved. Chains of orthopædic clinics for out-patient treatment are to be established throughout the county, whilst the sparsely populated portions of the county will be provided for by a motor-car service. The greatest importance is attached to the education of the children admitted as many of them have hitherto received very little education and, being cripples, they will largely have to depend for a living on their brains. Dr. Hoyte reports, for example, that the present patients include three boys aged 11, 13, and 16, who had never been to school and did not know the letters of the alphabet. Small classes and an unusually large staff of teachers will be necessary.

The midwifery service is being improved. Midwives' clubs are being formed, where the midwives can be instructed in modern methods. A successful one is already in operation at Chesterfield and five other centres have been arranged for where lectures and demonstrations can be given. A full-time woman medical officer, with extensive experience in gynæcology and obstetrics, has been appointed to conduct antenatal clinics at about 12 centres, to instruct and inspect the midwives, to investigate maternal deaths, and to supervise the council's maternity homes. Under the puerperal fever regulations nine cases were admitted to hospital, and a consultant's opinion was provided in six cases. There are five consultants in all—two in Derby, two in Sheffield, and one in Manchester. Derbyshire is well supplied with hospital accommodation, and Dr. Ash is of opinion that it is better to provide lying-in accommodation by small extensions of existing hospitals than to provide new small expensive units.

Hampshire.

Dr. R. A. Lyster reports that the county council is now the authority for the Notification of Births Act, except for the city of Winchester and the borough of Aldershot, and that notification is well carried out, the default being less than 1 per cent. The eight subsidised beds at the Winchester Maternity Society's home were used by 137 cases. The Royal Hants Hospital has an antenatal clinic twice a month, in order to sort out abnormal cases for admission to the hospital from those cases suitable for the home. All the maternity and child welfare centres are voluntary. They now number 89 and only cost the county council £600 a year. There is a growing demand for antenatal clinics and five have been established in connexion with maternity and child welfare centres. Another chief clinic, similar to that at the Hants Hospital, has been established at Basingstoke, under the charge of an obstetrician. For the purpose of the puerperal fever regulations 12 consultants have been appointed after conference with the B.M.A. division and the Panel Committee.

The working of the insurance scheme against the expense of medical help summoned by the midwives shows that under this system the doctor is much more frequently called in. Thus, during 1927 the midwives attended 5554 cases, of whom 2718 had insured and 2836 had not insured. Among the insured cases a doctor was called to 45 per cent.; among the uninsured to 25 per cent. The insured cases cost the county council £897, or 6*s.* 7*d.* each; whereas the uninsured cases cost the county £436, or 3*s.* 1*d.* each.

Most of the inspection of midwives is carried out by the superintendent of the County Nursing Association. Dr. Lyster points out that at the conferences between local authorities and the Central Midwives Board it was unanimously agreed that the post of superintendent of the County Nursing Association should be separated from that of inspector of midwives. Dr. Lyster reiterates his opinion that venereal diseases can be effectively prevented and that the facts are kept from the public by a conspiracy of silence. All but eight of the 39 districts have instructed their officers to send samples of milk to the county laboratory for tubercle examination. Positive results will be followed by veterinary examination of the herd. A table shows that 364 samples of milk were examined with five positive results. It is not mentioned whether the examinations were microscopical or biological, and the results in the finding of tuberculous cows are not given.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 10TH, 1928.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 149 (last week 122); scarlet fever, 2958; diphtheria, 1320; enteric fever, 33; pneumonia, 890; puerperal fever, 37; puerperal pyrexia, 82; cerebro-spinal fever, 8; acute poliomyelitis, 11; acute polio-encephalitis, 1; encephalitis lethargica, 16; dysentery, 11; ophthalmia neonatorum, 94. No case of cholera, plague, or typhus fever was notified during the week.

The cases of small-pox were notified in the following 20 counties: London, 4; Chester, 5; Derby, 21; Devon, 6 (Plymouth); Durham, 26 (of these Jarrow 16); Essex, 6 (West Ham); Huntingdon, 1; Lancaster, 7; Leicester 6 (county borough 5); Lincoln, 1; Northumberland, 1; Nottingham, 3; Stafford, 13; Warwick, 8 (Coventry); Wilts, 2; Worcester, 1; Yorks, East Riding 1, West Riding 17; Glamorgan, 13; Monmouth, 7.

The number of cases in the Infectious Hospitals of the Metropolitan Asylums Board on Nov. 13th–14th was as follows: Small-pox, under treatment 16, under observation 2; scarlet fever, 2743; diphtheria, 1963; enteric fever, 22; measles, 71; whooping-cough, 293; puerperal fever, 14 (plus 7 babies), encephalitis lethargica, 71; poliomyelitis, 2; "other diseases," 19. At St. Margaret's Hospital there were 15 babies (plus 4 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 2 (1) from enteric fever, 15 (2) from measles, 6 (2) from scarlet fever, 24 (5) from whooping-cough, 28 (9) from diphtheria, 78 (16) from diarrhœa and enteritis under two years, and 68 (18) from influenza. The figures in parentheses are those for London itself.

The fatal case of enteric fever outside London occurred at Bolton. Liverpool reported 3 fatal cases of measles, Walsall, Hull, and Newcastle-on-Tyne 2 each. Sunderland and South Shields each reported 2 deaths from whooping-cough, Oldham 3 from diphtheria. Deaths from diarrhœa are still high; Liverpool reports 12, Manchester 10, Stoke-on-Trent and Salford 4 each; while Glasgow, Dublin, and Belfast record 4, 4, and 6 deaths respectively for the same week.

The number of stillbirths registered during the week in the great towns was 227 (corresponding to a rate of 41 per 1000 births), including 45 in London.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the committee 42 applications for grants were considered and £704 4*s.* was voted to 38 applicants. The following were some of the cases relieved:—

Widow, aged 62, of M.B. Since the death of her husband in 1913 the applicant has been entirely supported by her elder daughter who was doing well on the stage. This daughter died early in September, 1928, after a short illness, leaving her mother destitute and without means of support. Voted emergency grant of £10 and a yearly grant of £36 in four instalments. Other medical charities have been approached to augment the widow's income.

Widow, aged 65, of M.R.C.S. Was left penniless on the death of her husband in 1920. She has lived with her elder daughter who is a widow with one child aged 12. The daughter is earning £2 10*s.* a week which is the only income for these three persons. Voted £36 in four instalments.

Widow, aged 65, of L.R.C.S. For eight years after the death of her husband the applicant supported herself by letting rooms. Later she earned her living as a cook-housekeeper, but owing to her age had to give up work. She lives with her adopted daughter who receives £4 a month from her husband who is working in Canada. Voted £36 in four instalments.

Daughter, aged 52, of L.R.C.P. She is living with her brother who is only able to earn £71 10*s.* and lives rent free in three rooms. On many occasions it has been found that the applicant was practically starving. Voted £26 in four instalments and clothes to be supplied by the Guild. The local Council of Social Welfare is interested in this case.

Subscribers and donors are asked to forward their subscriptions for the current year before Dec. 31st, 1928. Not only the scope of the Fund's work, but also the amount of assistance given depends upon the subscriptions received, and in view of the many cases in which help is greatly needed, especially during the winter months, an urgent appeal is made for contributions. Cheques should be sent to the hon. treasurer, 11, Chandos-street, Cavendish-square, London, W. 1.

Correspondence.

"Audi alteram partem."

THE DERATING OF HOSPITALS.

To the Editor of THE LANCET.

SIR,—I would suggest that the governing bodies of hospitals should consider seriously the expediency of appealing for hospitals to be brought within the derating provisions of the new Local Government Bill. Their need is great, the justice of such a course is evident, and I do not propose to take up your space by adducing arguments. It is essential to act without delay. I am, Sir, yours faithfully,

Buxton, Nov. 17th, 1928. CHARLES W. BUCKLEY.

THE HÆMOGRAM.

To the Editor of THE LANCET.

SIR,—The papers on the blood and Arneth counts you have been recently publishing and an excellent paper in the *Journal* of the Royal Naval Medical Service for October, by Surgeon-Commander W. I. Gerrard, who (quoting Piney) refers to Schilling, encourage me to say a word on Schilling's hæmogram. Both this and his work on the blood picture are too little, I venture to think, known in England. An assistant in Berlin University, he contributed the section on Blood Examination to the great Tropical Diseases Handbook, has written a book on "The Blood Picture" (now in its sixth edition) and two students' guides, one on general blood study, the other on the deep drop (each in its third edition)—evidence that his work is appreciated in Germany.

Schilling takes the view that the normal blood picture is a cell complex of highly differentiated cells, ripened though not of equal age, in very constant proportion, altered at one end by degeneration or loss (i.e., hæmorrhage), at the other by regeneration, the work of the blood-forming organs, bone-marrow (red cells and granulocytes), lymphoid tissue (lymphocytes), and the reticulo-endothelial tissue especially of the spleen and liver (monocytes). Disease alters these organs and the variation in their output shows in the blood. There is normally a definite point in development at which these cells are drafted into the circulation. When irritation occurs, replacement is needed, and as this need increases, the barriers to the circulation are lowered further and further and cells are sent out less and less mature. This immaturity is shown by the Arneth count, but red cells, eosinophiles, &c., must also be considered, and to make this easy, to ensure that none is overlooked, is the purpose of the hæmogram.[1] This, when completed, shows red and white count, hæmoglobin, deep drop, parasites, and so on; the white cells are charted in great detail, basophiles, eosinophiles, neutrophiles, four groups—(*a*) myelocytes; (*b*) metamyelocytes with round nuclei ("immature"); (*c*) metamyelocytes with notched nuclei ("band-form"; I submit "ribbon-like" is more what is meant, like a capital U, the nucleus the same thickness all along; (*d*) multilobed polymorphs. The names "immature," "band," and "multilobed" are from Admiral Stitt's book in which they first, so far as I know, got English names. Ordinarily there are 4 of (*c*) to 63 of (*d*). As the need for replacement increases and the reserves are hurried up, more and more (*c*) appear; perhaps (*b*), even (*a*). This is "the shift to the left," measured by the fraction $\frac{a+b+c}{d}$; in a blackwater case it may be $\frac{21+21+16}{28}$ or 2. Other showings must be taken into account. Of three cases of acute pyrexia with leftward shift and leucopenia one might be a malarial relapse, shown by polychromasia of the red cells, one sand-fly fever, with a very characteristic leftward shift; dengue shows less leucopenia, less leftward shift, no polychromasia. The hæmogram also gives warning of such complications as sepsis, hæmorrhage; the blood reacts more quickly than the temperature. Like the findings of auscultation, those of the hæmogram are not always easily interpreted, but experience will help. As Schilling says, it is not the blood which deceives. He wishes the clinician to tell the pathologist his (clinical) diagnosis of the case, when the clinician will be informed whether that seems probable, possible, or unlikely to the pathologist, for thus it is easy to have an objective check on diagnosis. Unexpected conditions may come to notice, of which he gives examples.

I regret I can myself say no more, as Schilling's book came my way only after I had ceased to work in laboratories. But I submit his method is very valuable.

I am, Sir, yours faithfully,

Kew, Nov. 18th, 1928. W. E. HOME.

[1] Obtainable in pads from Lautenschläger, Berlin, N.39.

SALVARSAN TREATMENT OF ANTHRAX.

To the Editor of THE LANCET.

SIR,—In discussing the chemical treatment of anthrax in your Modern Technique series Dr. Adrianus Pijper, after pointing out the importance of neosalvarsan in anthrax, writes: "The salvarsan treatment of anthrax has never failed us yet, although its theoretical foundation may be lacking." In my opinion the explanation is this. Neosalvarsan is a chemotherapeutic substance. According to Ehrlich these substances possess haptophoric and toxophoric groups. After absorption by the blood cells haptophoric groups of neosalvarsan combine with the chemo-receptor groups of the micro-organisms, while the toxophoric groups exercise baneful influence over the bacteria. The factor of stimulation may come in, as well as that of immunity. Arsenic compounds, like those of antimony, belong to a group which wields wide influence on various infections of different ætiology, while the amount of active immunity is, as we know, more marked during the beginning of infection. I think the action is bacteriotoxic rather than bactericidal.—I am, Sir, yours faithfully,

P. V. KARAMCHANDANI, M.B., I.M.S.,
In charge, Indian Military Hospital, Pishin
Oct. 23rd, 1928. (Baluchistan), India.

"FEE-SPLITTING."

To the Editor of THE LANCET.

SIR,—According to the legal reports in the *Times* of Oct. 25th a lady who is principal of the Radiant Health Institute said in evidence that she was sent cases by many leading specialists, and that these gentlemen shared her fees. This statement might very well be ignored but for the unfortunate fact that three of the foremost and most respected names of the profession appear in the report in very close juxtaposition to this allegation. Probably these gentlemen felt the matter to be beneath their notice, but would it not be very desirable that they should publish a short disclaimer or require the lady in the case to make it quite clear that she was not referring to them?

I am, Sir, yours faithfully,

DONALD M. O'CONNOR.

Malmesbury, Wilts, Nov. 7th, 1928.

*** There are charges too wild to need refutation. Dr. O'Connor has perhaps taken the case of McCalman *v.* Walton (*Times*, Oct. 25th) too seriously. Plaintiff complained that defendant's "Radiant Health Institute" had failed to give her a continuous course of "curative rhythm" because defendant was preoccupied with a project for rejuvenating elderly ladies at £500 apiece. Defendant admitted she had had this golden vision; a medical practitioner was to help her and three distinguished specialists (whom she named) would send patients and share fees; but she added regretfully that the project never got beyond the visionary stage.—ED. L.

SHAKESPEARE'S DOCTORS.

To the Editor of THE LANCET.

SIR,—It would be interesting to know upon what grounds Sir StClair Thomson (as reported in your issue of Nov. 10th, p. 977) thinks that Shakespeare had "rather made fun of doctors up to King Lear." As a matter of fact, Shakespeare shows far more consideration for the medical profession than does any of his contemporary dramatists. Possibly Sir StClair Thomson had in memory the Pinch of the "Comedy of Errors" and Dr. Caius of the "Merry Wives," but when it is borne in mind that in both these plays Shakespeare was merely working upon older material (as is so ably shown by the Rt. Hon. J. M. Robertson in his "Canon of Shakespeare," Part II., and his "Problem of the Merry Wives of Windsor") in which he probably had no alternative but to retain certain comic parts dear to the groundlings, he can hardly be made responsible for the anachronism Pinch or the caricatured Frenchman. Shakespeare's own doctors are Dr. Butts (introduced for a brief moment into the last act of "Henry VIII." in a strictly non-professional character), who does not count, since he is probably introduced by Fletcher, Dr. Cornelius of "Cymbeline," and the deceased Gerard de Narbon in "All's Well," all worthy men and not "made fun of." Further, there are the unnamed doctors in "Macbeth" and "Lear," also worthy and serious delineations. As to references to the profession, it is true that in "Much Ado" (v., scene i.) there occurs: "Then is an ape a doctor to such," but here, as in many other passages (the word "doctor" occurs 64 times in Shakespeare, but in the medical sense in 46 only), it means a "learned man." Nor in the 29 passages containing the word "physician" can I find one in which the title or the calling is ridiculed.

It is very different when one comes to consider the other Tudor dramatists. I have a list of 29 named and unnamed doctors culled from the works of Ford, Jonson, Webster, Tourneur, Massinger, Greene, Fletcher, Beaumont, Marlowe, Middleton, Dekker, and Chapman, excluding surgeons. Of these, some are good fellows and good doctors; others, like Eudemus, in "Sejanus," and Lecure, in "Thierry and Theodoret," are scoundrels, panders, and poisoners; Alibius, in "The Changeling," keeps a very doubtful private asylum, and the unnamed physician in "The Fair Quarrel" is one of the lowest blackguards to be found in any play. In no work of Shakespeare can be found such a passage as the remark of the "Spanish Curate":

> "The doctors are our friends; let's please them well;
> For, though they kill but slow, they are certain."

or that in "The Lover's Melancholy":

> "Thou art in thy religion an atheist, in thy condition a cur, in thy diet an epicure, in thy lust a goat, in thy sleep a hog; thou takest upon thee the habit of a grave physician, but thou art indeed an impostorous empiric. Physicians are the cobblers, rather the botchers, of men's bodies; as the one patches our tattered clothes, so the other solders our diseased flesh."

A knowledge of the works of his contemporaries adds greatly to one's appreciation of Shakespeare. There is no physician among their characters that can compete in delineation with, say, the unnamed man who ministers to Lear, or the wise Cornelius who circumvents Cymbeline's vile queen, or the Scottish doctor who has to face Macbeth. They are as different as is Shakespeare's soaring, Pegasus-like verse from the pedestrian lines of his brother playwrights, even from "Marlowe's mighty line." To paraphrase a modern poet: "What do ye know of Shakespeare Who only Shakespeare know?"

I am, Sir, yours faithfully,

Wimpole-street, W., Nov. 10th. MACLEOD YEARSLEY.

ST. MARY'S HOSPITAL, PLAISTOW.—The Lord Mayor of London has opened the first section of the new out-patients' department which has cost £16,000. The section includes an accident receiving room, casualty, general and ophthalmic operating theatres and the necessary concomitants, and accommodation for five extra accident cases.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

LOCAL GOVERNMENT (SCOTLAND) BILL.

THE Local Government (Scotland) Bill, which has been introduced in the House of Commons by Sir JOHN GILMOUR (Secretary of State for Scotland), is divided into four parts. Under Part 1 the county councils (as reconstituted) and the town councils of burghs having a population of more than 20,000 will become the authorities for poor-law, lunacy, and mental deficiency, major health services, classified roads, and certain other services. Among the bodies that will disappear after the passing of the Bill are parish councils (the existing poor-law authorities) and district boards of control (who are at present charged with the administration of the Lunacy and Mental Deficiency Acts). Where a district board have provided a district asylum the county councils and the town councils of the large burghs within the district are treated as having combined for carrying on the asylum. With certain unimportant exceptions the expenses relating to the transferred functions will be charged over the whole area of the county or large burgh, and not on the basis of the parish or district as hitherto. Among the principal matters with which the enactments set out in Part 1 of the First Schedule deal are: Infectious diseases (including tuberculosis and venereal disease), maternity service and child welfare, milk and dairies, adulteration of food and drugs and unsound food, and town-planning. The first four categories may be described as the major health services. Clause 11 contains further provisions with regard to combinations of local authorities. Such combinations may be voluntary, but where combination would be of public or local advantage it may also take place as a result of an Order by a Central Department, such as the Secretary of State, the Scottish Board of Health, and the General Board of Control for Scotland. Compulsory combination of authorities can take place only on the application of one of the authorities. In counties there must be a committee for poor relief, and a provision is inserted permitting any council to include in any committee or subcommittee persons who are not members of the council so long as at least one-half of the members are members of the council. No council is allowed to delegate to a committee any function relating to raising money by rate or loan or incurring capital expenditure. Clause 13 permits a county council to delegate certain functions to the town council of a small burgh on terms to be agreed upon. Under Clause 18 the limit of 1s. per £, which still applies in counties to the public health general assessment, is repealed. Clause 19 makes it compulsory on every rating authority instead of levying separate rates for poor relief, public health, and so forth over the whole area of the authority to levy a consolidated rate. Clause 24 empowers a county council to give financial assistance to any special district (e.g., for water or drainage) where the district in their opinion is unable to bear the whole expense unaided. Clause 25 provides that if the town council of a small burgh fail to discharge their duties with regard to water-supply, drainage, or housing (which duties are not being transferred by the Bill to county councils), or any other public health duties, the Scottish Board of Health may empower the county council to discharge the duty at the expense of the burgh for such period as may be specified. Clause 26 provides that when a vacancy occurs in the post of medical officer of health or sanitary inspector of a small burgh the county medical officer of health or sanitary inspector shall be appointed to the appropriate vacancy unless the Scottish Board of Health otherwise agree.

NEW BILLS.

In the House of Lords on Wednesday, Nov. 14th, Lord DARLING presented a Bill for the preservation of infant life. In the House of Commons on the same day Sir R. GOWER presented a Bill to prohibit the vivisection of dogs. Both measures were read a first time.

EXPIRING LAWS CONTINUANCE BILL: THE TWO-SHIFT SYSTEM AND WORKERS' HEALTH.

On Friday, Nov. 16th, the House of Commons went into Committee on the Expiring Laws Continuance Bill, Mr. HOPE (Chairman of Committees) in the Chair.

Mr. RHYS DAVIES moved an amendment to omit the continuation of Section 2 of the Employment of Women, Young Persons and Children Act, 1920. About 800 orders, he said, had been issued under this clause, and they would soon reach the stage when all the workpeople in the country would be employed under the two-shift system, which would be a terrible state of things indeed. The proof that the system was never intended to continue beyond the war period was to be found in the section itself which provided

that it should be abolished on Jan. 1st, 1926. The continuance of this section was, in fact, torpedoing the Factory Act of 1901 by destroying one of its main provisions.

Miss BONDFIELD said that she had received some very pathetic letters addressed to her, not as a Member of Parliament, but as the chief woman officer of her own trade-union. She had a number of letters from mothers in which they made reference to the injury done to the health of their daughters. It seemed to her that it was the policy of the Home Office deliberately to encourage the establishment of the two-shift system. She supported wholeheartedly the demand for the withdrawal of the section.

After further debate,

Sir W. JOYNSON-HICKS (Home Secretary) said that the clause did not involve women and young persons working more than eight hours a day. It meant running a factory for 16 hours in two shifts of eight hours each, and there was a large amount of evidence in the possession of the Home Office that at periods of pressure it was better for the health of the workers to work under those conditions than to work overtime. An order was granted only after a very full and special inquiry had been made by the factory inspector as to whether the workers desired it, and consideration of whatever recommendations the inspector made in his report to the Home Office. Speaking generally, the standard of welfare in factories where the two-shift system was in operation was distinctly above the average of factories generally. After the Order was made the factory had to be visited at least once every quarter by the factory inspector. The number of Orders granted was 786 in respect of 681 works, but, so far as he could gather, not more than one-third of the total were at work at any one time. No hon. Member had put before him any evidence that the health of the workers suffered by reason of the two-shift system. He found that workers often applied to be put on the system, and that except in certain specified cases the women had not complained of the work, and were more than satisfied to go on with the system. The Medical Research Council and the Industrial Fatigue Board had made a very careful investigation into the consequences and effect of the two-shift system. They stated in their report that no conclusive evidence had been found of a greater amount of sickness on one side or the other. In three out of four typical factories investigated the Board reported that the workers preferred the shift work to the day work. He thought that it was an experiment well worth proceeding with.

The amendment was negatived by 122 votes to 106—Government majority 16.

CLOSING OF HAIRDRESSERS' SHOPS ON SUNDAYS.

On Tuesday, Nov. 20th, Mr. JAMES STEWART asked leave to introduce a Bill to provide for the compulsory closing of hairdressers' and barbers' shops on Sundays. He explained that the Bill, which he has introduced on several previous occasions, dealt with what was a dangerous trade. The conditions under which the people in the barbers' shop worked were injurious to their health. In a great many instances, the shops were unhealthy places, and if there was a proper standard of inspection many of them would not be allowed to carry on. The workers in this trade worked longer hours than did the average shopkeeper, the average being from 60 to 70 per week. In 1914, one out of every five of the persons engaged in the trade died of consumption, and to-day, if Members went to a barber's shop, they must remember that one out of five of the men who looked after them were sources of infection.

Leave was granted to bring in the Bill, which was read a first time.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 14TH.

Scottish Local Authorities and Rating Reform.

Mr. SHINWELL asked the Secretary of State for Scotland how many local authorities had made representations to him expressing opposition to the proposed changes in local government in Scotland, and how many had stated their views in support.—Sir J. GILMOUR replied: I have received representations from 44 local authorities against, and from 20 local authorities in favour of, the Government scheme as a whole. In some cases representations in favour are conditional on amendments, more or less extensive, being made in the scheme, or on the new grants being adequate. I have also received a number of representations from local authorities as to details of the scheme.

Direct Sunlight in School Buildings.

Sir CHARLES TREVELYAN asked the President of the Board of Education why the Board had recently insisted on certain local education authorities, against their wishes, putting windows into their schools admitting direct sunlight; and whether, in view of the difference of expert opinion in the matter, he would allow local authorities discretion to experiment in this relatively small problem of school planning.—Lord E. PERCY replied: The authorities in question proposed to erect premises into which direct sunlight could never penetrate. Since, by the use of a blind, it will still be possible to exclude direct sunlight when desired, I do not think that there has been any unreasonable interference with the authorities' discretion. Experiment is good, and, as the right hon. Member must be aware, the rigidity of the Boards' building regulations has been very greatly relaxed during the last three years; but the essence of an experiment is that it may fail, and the experimenter should be careful to leave a way open for retracing his steps.

Salaries of Post Office Medical Officers.

Dr. LITTLE asked the Postmaster-General if he was aware that salaries paid to officers in the post-office medical service were lower than in any other Government department, and that it was the only department in which unequal rates of payment as between men and women obtain, and if he proposed to take suitable action in the matter.—Viscount WOLMER (Assistant Postmaster-General) replied: The salaries of the officers in question were recently the subject of a claim before the Industrial Court, who have referred the matter back to the parties for reconsideration. Pending further developments, I cannot make any statement on the matter.

THURSDAY, NOV. 15TH.

Assessment of War Pensions for Deafness.

Mr. R. MORRISON asked the Minister of Pensions whether there was any fixed rate of disability for an officer or man who was rendered stone deaf by head wounds; and whether, in fixing his rate of disability, any consideration was given to his pre-war occupation.—Major TRYON replied: The rate for total deafness caused by war service is fixed at 70 per cent. by the Royal Warrant. In the case of deafness, as of other disabilities, assessment is, in the interests of pensioners, uniformly in accordance with the degree of physical disablement, without regard to the fitness or unfitness of the pensioner for any particular occupation.

Milk Adulteration in Brecon.

Dr. VERNON DAVIES asked the Minister of Health if he was aware that in 1924 the county of Brecon, under the Sale of Food and Drugs Acts, examined only four samples of milk, of which three were found to be adulterated, and in 1925 they examined eight samples, all of which were found to be adulterated, and that in the years 1926 and 1927 no samples of milk were examined, in spite of the evidence of the unsatisfactory results of the previous two years; and what steps had been taken to draw the attention of the county authorities to these facts, and what reply, if any, had been made to such representation.—Mr. CHAMBERLAIN replied: So far as regards samples submitted to the public analyst the facts are as stated in the question. It is the practice in this county to have most of the milk samples tested informally by the inspectors, and only to send samples to the public analyst where the results of the informal tests show reason to suspect adulteration. During the four years in question over 1100 samples were tested by the inspectors in the county of Brecon. I have impressed on the county council the importance of submitting an adequate number of unsuspected samples to the public analyst, and they have promised that in future a certain number of samples will be regularly submitted to him.

Block Grants for Maternity and Child Welfare.

Mr. W. THORNE asked the Minister of Health if he was aware that the Association of Infant Welfare and Maternity Centres, representing 1200 local centres, had passed a resolution protesting against the proposals for reform in local government with respect to the substitution of block grants in support of maternity and child welfare service; and whether the views of this Association would be taken into consideration before the matter was brought before the House.—Mr. CHAMBERLAIN replied: The answer to the first part of the question is in the affirmative. The proposals of the Government in this matter are already before the House, and should, I think, completely dispel any fears lest the maternity and child welfare service should suffer by the changes foreshadowed.

Reconstituted Cream Bill.

Mr. EVERARD asked the Minister of Health whether he proposed to introduce the Reconstituted Cream Bill during the present session.—Mr. CHAMBERLAIN replied: I regret that it will be impossible to find time for such a Bill this session.

Maternity and Child Welfare.

Mr WEBB asked the Minister of Health the total number of local health authorities which might take action under

the Maternity and Child Welfare Act, 1918, and also the approximate number of such authorities, distinguishing between county boroughs, county councils, urban districts, and rural districts, that had submitted for his sanction under that Act arrangements for provision for expectant and nursing mothers and children under 5 years not in attendance at school.—Mr. CHAMBERLAIN replied: The following is the information asked for: There are 1856 local health authorities (including county councils) in England and Wales which are empowered to take action, with the sanction of my department, under the Maternity and Child Welfare Act, 1918. Provision has been made for maternity and child welfare in every sanitary district in the country, either by the county council or the local sanitary authority. The authorities at present making provision are 60 county councils, 83 county borough councils, 150 borough councils, 135 urban district councils, and 18 rural district councils.

Mr. MONTAGUE asked the Minister of Health the terms of the recent circular to local authorities intimating a maximum expenditure which would be recognised for grant-in-aid of the supply of milk for expectant and nursing mothers and children; to which authorities the circular was sent; and the estimated saving to the Treasury.—Mr. CHAMBERLAIN replied: No such circular has been issued, but in the letters which were sent to some local authorities last March, informing them of the maximum expenditure for maternity and child welfare work during the current financial year which could be recognised for grant, certain suggestions as to procedure were made, with a view to enabling the authorities to keep their expenditure on milk within the amounts approved for grant. This letter was sent only to the authorities whose estimated expenditure on milk exceeded £100, and, moreover, was not addressed to those whose districts are situated in distressed mining areas in Durham, Lancashire, Northumberland, and South Wales. The total estimated saving in grant is about £12,000.

Prescription of Liver Extract to Insurance Patients.

Mr. AMMON asked the Minister of Health whether panel doctors might prescribe liver extract in cases of pernicious anæmia; and would such be accepted as a legitimate charge on the National Health Insurance Fund.—Mr. CHAMBERLAIN replied: The decision of the question whether this or other preparations can be regarded as drugs or medicines within the meaning of the National Health Insurance Acts rests primarily with insurance committees. But, in response to inquiries made on behalf of committees, I have indicated that there is nothing before me to suggest that this preparation could properly be regarded as being excluded from the scope of medical benefit in any cases in which it is requisite for the patient's treatment.

Claims for Sickness, Disability, and Maternity Benefits.

Mr. RHYS DAVIES asked the Minister of Health whether the claims for sickness, disability, and maternity benefits from approved societies were now decreasing or otherwise; and if he would show the amounts on the basis of comparisons for previous periods.—Mr. CHAMBERLAIN replied: The following statement gives an approximate comparison of the benefit expenditure of approved societies in England and Wales in 1926 and 1927, with the expenditure in 1925. Allowance has been made for variations in additional benefits, &c., in order to make the figures for the various years as far as possible comparable.

—	Percentage ratio of expenditure in undermentioned years to expenditure in 1925.	
	1926.	1927.
	Per cent.	Per cent.
Sickness benefit { Men ..	116	113
Sickness benefit { Women ..	108	112
Disablement benefit { Men ..	113	124
Disablement benefit { Women ..	114	126
Maternity benefit { Men ..	95	90
Maternity benefit { Women ..	105	103

Complete information relating to 1926 to date is not available, and direct comparison with previous years is impracticable owing to the cessation, since January last, of the right to sickness and disablement benefit in the case of persons over age 65. An examination of the expenditure of certain large societies in the first half of 1928 indicates broadly, after allowing approximately for the above-mentioned cessation, that the expenditure on sickness benefit in this period was rather less than in the corresponding period of the preceding year in the case of both men and women. In this connexion it will be appreciated that a severe influenza epidemic materially affected the claims in the early months of 1927. The cost of disablement benefit was, however, somewhat heavier in 1928 in respect of each sex.

Poor-law Statistics.

Sir WALTER DE FRECE asked the Minister of Health the proportion of the estimated population in receipt of poor-law relief on Jan. 1st, 1914, and in each of the last 10 years.—Mr. CHAMBERLAIN replied: The proportion per 10,000 of the estimated population of all persons in receipt of poor-law relief on or about Jan. 1st in the years 1914, and 1918 to 1928 was as follows:—

Year.	Rate per 10,000*	Year.	Rate per 10,000*	Year.	Rate per 10,000*	Year.	Rate per 10,000*
1914	208	1920	154	1923	403	1926	370
1918	156	1921	177	1924	357	1927	396
1919	148	1922	394	1925	311	1928	347

* Rate per 10,000 of estimated population, of persons in receipt of poor-law relief.

Sir WALTER DE FRECE asked the Minister of Health the total number of casuals relieved in England and Wales in 1914, and in each of the last ten years.—Mr. CHAMBERLAIN replied: The following statement shows the number of casuals in receipt of poor-law relief in England and Wales on or about Jan. 1st in the years 1914, and 1919 to 1928:—

Year.	Casuals.*	Year.	Casuals.*	Year.	Casuals.*
1914	7,568	1922	6,572	1926	8,294
1919	1,091	1923	7,628	1927	10,737
1920	2,035	1924	7,794	1928	10,497
1921	4,084	1925	7,664		

* Number of casuals in receipt of poor-law relief.

Mr. DUCKWORTH asked the Minister of Health what proportion of the rates per head paid in the years ending March 31st, 1914, 1924, 1925, 1926, and 1927 were for the relief of the poor, and purposes connected therewith; and how much for other purposes.—Mr. CHAMBERLAIN replied: The following statement gives the desired information:—

Year ended March 31st.	Average amount of rates collected per head of estimated population.		
	For relief of the poor and purposes connected therewith.*	For all other purposes.*	Total.
	s. d.	£ s. d.	£ s. d.
1914 ..	6 5	1 12 6	1 18 11
1924 ..	16 11	2 17 8	3 14 7
1925 ..	16 1	2 17 2	3 13 3
1926 ..	16 2	3 0 3	3 16 5
1927 ..	19 2	3 2 6	4 1 8

*Approximate.

Overcrowding at the Newington Institution.

Mr. DAY asked the Minister of Health whether his attention had been drawn to the inadequate accommodation and overcrowding at the Newington Institution, particularly with reference to the shortage of hospital beds where serious overcrowding had taken place each winter for several years past; and in view of the fact that certain essential improvements in the receiving wards, nursery, and other receiving departments of the Newington Institution had been repeatedly urged by the inspector of the Ministry of Health, what steps his department were taking in the matter.—Mr. CHAMBERLAIN replied: I am aware that some additional accommodation is required at this institution, but I am unable at the present time to contemplate the approval of the scheme that has been submitted by the Southwark Board of Guardians, which involves an expenditure of at least £100,000. My officers have already made suggestions designed to meet the immediate needs of the institution.

Artificial Light Treatment for School-children.

Dr. VERNON DAVIES asked the President of the Board of Education what steps he took to provide that artificial light treatment for the school child was only given by properly qualified persons.—Lord E. PERCY replied: In many cases artificial light treatment for children attending public elementary schools is provided at the light department

of a general hospital under an arrangement between the local education authority and the hospital authorities. Treatment at a school clinic is allowed only on condition that a medical officer with special experience of artificial light therapy will be in charge, and that he will be assisted by a nurse who has also had special experience of this work.

Tuberculosis in the Navy.

Sir A. SHIRLEY BENN asked the First Lord of the Admiralty whether the rules and principles governing the assessment of attributability in tuberculosis cases in the Royal Navy had been investigated; and, if so, what decision had been reached by the Board of Admiralty.—Lieut.-Colonel HEADLAM (Parliamentary Secretary to the Admiralty) replied: The Board of Admiralty have made the most careful and exhaustive inquiry into the incidence of tuberculosis in the Navy with particular reference to the question whether, in the matter of pension awards following invaliding for this disease, there is adequate recognition of causes peculiar to the conditions of naval service afloat to which tuberculosis might be regarded as attributable. As a result of this investigation they have come to the conclusion that although the rules and principles governing the assessment of attributability in tuberculosis cases have in the past been correctly formulated there are grounds justifying more generous treatment in many of these very distressing cases, and they have decided that in respect of invalidings as from Oct. 1st last there should be such a modification of these rules and principles as will very considerably reduce the percentage of cases in which "non-attributable" awards only can be regarded as appropriate. These arrangements are, of course, without prejudice to the consideration of any recommendations which may be embodied in the report on this question which is expected shortly from the Joint Medical Services Committee.

Small-pox in the Army.

Mr. KELLY asked the Secretary for War whether he was now in a position to publish the statistics of the small-pox cases and deaths recorded in the British Army in every part of the world during the years of the war.—Sir L. WORTHINGTON-EVANS replied: The official History of the War (Medical Services, Hygiene of the War, Vol. II.) gives a good deal of general information as to small-pox. A statistical volume of the medical history of the war is in course of preparation, but I am unable to say to what extent it will be possible to deal with the statistics of any particular disease.

MONDAY, NOV. 19TH.

Government and Radium Supplies.

Sir H. BRITTAIN asked the Prime Minister whether, in view of the increased demand for radium for curative purposes and of the uneconomical character of purchases of small quantities by institutions, he would consider rendering Government assistance in obtaining supplies.—Sir K. WOOD (Parliamentary Secretary to the Ministry of Health) replied: The whole question of the radium requirements of this country in relation to present sources of supply is at present under consideration by a subcommittee of the Committee of Civil Research.

Use of Electrotherapy.

DR. VERNON DAVIES asked the Minister of Health if his department was in any way responsible, by means of grants or otherwise, for the use of electrotherapy in the treatment of disease; and, if so, what steps were taken to insure that the treatment was only given by properly qualified persons.—Sir K. WOOD replied: Yes, Sir. Electrotherapy is practised in public institutions dealing with tuberculosis, with maternity and child welfare, and with the care of the pauper sick. It is a condition of any grant that the medical officer using such means of treatment should be specially qualified or experienced, and the treatment provided in a poor-law institution is always under the direction of a qualified medical practitioner.

TUESDAY, NOV. 20TH.

Smoke Abatement.

Commander BELLAIRS asked the Minister of Health whether he could make a statement as to any progress achieved as the result of the Public Health (Smoke Abatement) Act, 1926.—Mr. CHAMBERLAIN replied: There are now five Regional Advisory Committees, including one for Greater London, and one Executive Committee with administrative powers. An Order has been made bringing new processes under the operation of the Alkali Act. By-laws as to the emission of black smoke have been approved for a number of local authorities, and generally there is a marked quickening of interest and activity in the work of smoke abatement.

National Health Insurance Contributions.

Mr. RILEY asked the Minister of Health the respective contributions of the State, the employers, and the insured persons to the National Health Insurance Fund for the year 1927–28.—Sir K. WOOD replied: As the National Health Insurance Fund accounts are made up for calendar years, figures for the financial year are not readily available. For the year 1927 the approximate contributions of employers and insured persons in England and Wales were: Employers, £11,866,000; insured persons, £11,748,000. The State contribution, which represents the statutory proportion of the cost of benefits and administration, together with the cost of central administration, was, in 1927, £6,842,000.

The Price of Milk.

Mr. R. MORRISON asked the Minister of Agriculture the total annual additional sum which would be charged to the milk consumers of the metropolitan area under the recently arranged agreement between the milk distributors and the National Farmers' Union.—Mr. GUINNESS replied: It has been stated that the retail price charged by distributors will be increased by 1*d.* per quart in the months of April and September, 1929. The consumption of milk per head per day in this country has been estimated at approximately one-third of a pint, and on this basis the additional average cost would be 10*d.* per head for the two months. Taking the population of Greater London at 7,810,000, this is equivalent to £325,400.

Obituary.

EDWARD KNIGHT, M.R.C.S., L.S.A.

ON Oct. 26th died Edward Knight, who was for long a senior demonstrator, chief assistant, and subsequently sole director of Cooke's School of Anatomy in Handel-street, London. It will be remembered that at the end of last century this establishment was the only private medical school in the United Kingdom which was licensed to keep a dissecting room and recognised to take students during the curriculum. Edward Knight was born in 1859, pursued his medical studies at University College and Middlesex Hospitals, and qualified L.S.A. and M.R.C.S. in 1889. He specialised early in anatomy, for his book, "A Plea for Practical Anatomy," was published not many years after he became qualified, and most of his life was spent in the dissecting room and lecture theatre. Many who were not necessarily idlers are still grateful for the help in their anatomy afforded them at "Cooke's School." The extraordinarily systematised and intensive courses allowed of a rapid survey of the naked-eye anatomy in the shortest possible space of time. Edward Knight was exceptionally gifted in carrying on instruction by means of quick question and answer on the dissected part. He was of a cheerful, even jocular, disposition, and had a handsome and somewhat commanding person. He was, therefore, well adapted to hold the attention of those who had least "learnt to learn," while many candidates for the Primary Fellowship found it helpful to be put rapidly through their paces by this energetic and sprightly coach.

Sir James Dundas-Grant writes: "Knight had naked-eye anatomy at his fingers' ends and knew Cooke's wonderful tablets through and through. These 'tablets' presented pretty solid doses of anatomy in a most condensed form, in which the regional and systematic methods were cleverly blended. The work for the teacher was extremely hard, and there is every probability that the strain, even on this vigorous man, led to the progressive muscular atrophy which after a considerable number of years of poor health led to his death."

Many of his pupils have no doubt predeceased him, but there must be still a number remaining who will remember him with gratitude.

Medical News.

UNIVERSITY OF OXFORD.—An examination for a Radcliffe Travelling Fellowship, of the annual value of £300 and tenable for two years, will be held during Hilary Term, 1929, at the University Museum, commencing on Feb. 12th at 10 A.M. Candidates must have passed all the examinations required by the University for the degree of Bachelor of Arts and for the degree of Bachelor of Medicine, the latter within the last four years. The successful candidate must devote himself during the period of his tenure of the Fellowship to the study of medical science and to travel abroad with a view to that study. At the examination papers will be set in physiology, pathology, and preventive medicine, and a subject will be proposed for an essay. There will also be a practical examination in pathology. Intending candidates should send their names, addresses, and qualifications to the Regius Professor of Medicine, University Museum, on or before Jan. 30th.

UNIVERSITY OF LONDON.—Prof. G. E. Gask has been elected Dean of the Faculty of Medicine for the period 1928–30, and Prof. L. N. G. Filon Dean of the Faculty of Science.

OLD EPSOMIAN CLUB.—The annual dinner of this club will be held at the Trocadero Restaurant, Piccadilly-circus, at 7.30 P.M., on Thursday, Dec. 13th.

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.—The next quarterly meeting of this Association will be held to-day (Friday), Nov. 23rd, at the British Medical Association House, Tavistock-square, London, W.C., under the presidency of Prof. J. Shaw Bolton, when a discussion will be held on certain points raised in papers on general paralysis read by Dr. J. Brander and Dr. J. F. Smyth at the annual meeting.

ANTENATAL METHODS WITH SPECIAL REGARD TO DISPROPORTION.—A discussion on this subject will be held at a meeting of the Maternity and Child Welfare Group of the Society of Medical Officers of Health at the Royal Free Hospital, Gray's Inn-road, London, W.C., to-day, Friday, at 8 P.M. Prof. L. McIlroy, Mr. Eardley Holland, Prof. F. J. Browne, Dr. Annie McCall, Mr. Aleck Bourne, and Mr. Lane Roberts will speak.

NATIONAL INSTITUTE FOR THE DEAF.—Two lectures entitled the Wonders of Hearing and Facts on Deafness are to be given at 8 P.M. on Tuesday, Dec. 4th and 11th, at the Eustace Miles Restaurant, 40, Chandos-street, London, W., by Mr. C. M. R. Balbi, A.M.I.E.E., consulting electrical adviser to the Institute. Seats will be reserved for those who send a stamped addressed envelope to the Secretary at 2, Bloomsbury-street, W.C. 1, and unreserved seats will be open to the public.

POST-GRADUATE COURSE OF LECTURES ON CANCER.—A series of four lectures will be held at the Medical School, Leeds, at 3.30 P.M. on Nov. 28th, Jan. 9th, Feb. 13th, and March 13th. The first will be on Cancer of the Breast, by Prof. A. H. Burgess; the second on Lead in the Treatment of Cancer, by Prof. W. Blair Bell; the third on the Lessons of the Recent Researches in Cancer, by Dr. A. Leitch; and the fourth on Cancer and the General Practitioner, by Mr. Cecil Rowntree. The lectures, the first three of which are to be illustrated by lantern slides, will be free to members of the profession.

ALLIANCE LODGE: *Installation and Banquet.*—The M.W. the Pro Grand Master, the Right Hon. Lord Ampthill, was present on Nov. 14th at the Installation Meeting of the Alliance Lodge, No. 1827, which celebrated the jubilee of the Lodge. Some 80 brethren, including a considerable number of grand officers, and many distinguished in the craft and medical profession, attended at the Café Royal in the afternoon, when W. Bro. H. Moreland McCrea, M.D., opened the Lodge. The M.W. the Pro Grand Master Lord Ampthill, assisted by the retiring Master, installed W. Bro. Ernest Clarke, F.R.C.S., P.M., P.G.D., as Master for the ensuing year, and subsequently delivered the addresses. The W.M. invested the following officers: I.P.M., W. Bro. H. Moreland McCrea; S.W., W. Bro. R. E. Sare; J.W., Bro. H. W. Carson, F.R.C.S.; Treasurer, W. Bro. J. S. Cotman, F.C.A., P.M., P.A.G.D.C.; Secretary, W. Bro. C. O. Hooper, F.C.A., P.M.; D.C., W. Bro. A. J. Clark, B.A., P.M.; S.D., Bro. B. B. Stenham, LL.B.; J.D., Bro. F. G. H. Holt; Organist, W. Bro. W. Sparks, P.M., P.G.D.; I.G., Bro. V. C. Dunfee; Stewards, W. Bro. Sir Holburt Waring, F.R.C.S., P.M., L.R., W. Bro. M. A. Nicholas, P.M.; and Tyler, Bro. T. Davis. The M.W. the Pro Grand Master was elected to honorary membership of the Lodge. The banquet was held at the Café Royal in the evening.

MEDICO-LEGAL SOCIETY.—The annual dinner of this Society will be held at the Holborn Restaurant, London, on Friday, Dec. 14th, at 7 for 7.15 P.M. Sir William Willcox, the President, will preside.

BRITISH DENTAL HOSPITAL.—The annual meeting will be held at 23, Russell-square, London, W.C., on Nov. 29th, at 8 P.M. Sir Harry Baldwin, the President, will take the chair, and Dr. Leonard Williams will speak on the Arch of the Buccal Building.

ST. JOHN'S HOSPITAL DERMATOLOGICAL SOCIETY.—A meeting will be held on Nov. 28th at St. John's Hospital, 49, Leicester-square, London, W.C., at 4.15 P.M. Clinical cases will be shown, and at 5 P.M. Dr. S. P. Bedson will read a paper entitled Observations on the Nature of Filtrable Viruses and their Bearing on the Ætiology of Herpes and Allied Conditions.

COLCHESTER HOSPITAL.—The accommodation for nurses at this hospital is so inadequate that some of them have to sleep three in a room. It has therefore been decided to extend the nurses' home at a cost of £30,000. The hospital serves 50 or 60 villages, some of which are making themselves responsible for the cost of a room in the new building.

PARAFFIN WAX IN BEEF DRIPPING.—On Nov. 15th, at Birkenhead police-court, a firm of manufacturers was fined £10 and £1 11*s.* 6*d.* costs for consigning a quantity of beef dripping which contained 8·4 per cent. of paraffin wax to a stallholder in the Birkenhead Market. Mr. H. E. Davies, public analyst, had stated that the paraffin wax was not only an adulterant, but might set up indigestion in anyone consuming the dripping.

HULL INFIRMARY EXTENSIONS.—Princess Mary, on Nov. 13th, laid the foundation-stone of the Sutton-on-Hull Annexe to the Royal Infirmary, Hull. The annexe is eventually to be enlarged to form an auxiliary hospital of 100 beds built on a site given by Mr. P. B. Reckitt, of Hull, and the Princess also declared open an extension of the out-patients' department of the infirmary, which has cost £10,000.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—Lectures and practical courses of instruction for the first part of this diploma will be held at the Maudsley Hospital, beginning on Jan. 8th, 1929. Lectures will be given on physiology, physiological psychology, biochemistry, anatomy and psychology, by Dr. F. Golla, Mr. S. A. Mann, Prof. G. Elliot Smith, and Dr. Henry Devine; and in addition four lectures on psychological mechanisms will be given by Dr. Edward Mapother.

A course for the second part of the diploma will be held from March to May inclusive. Inquiries should be addressed to the Director of the Central Pathological Laboratory, Maudsley Hospital, Denmark-hill, London, S.E.5.

DARENTH TRAINING COLONY, DARTFORD.—The Metropolitan Asylums Board has approved of the erection of a new nurses' home at a cost of over £40,000. The Mental Hospitals Committee reported that the cubicles on the top floor accommodating 46 of the female staff are dangerous in case of fire; that the nurses' sleeping quarters were scattered over the colony; and that some nurses had to use patients' baths in large bathrooms through which other nurses have to pass while bathing is in progress.

DONATIONS AND BEQUESTS.—The late Colonel D. Lewis, J.P., of Swansea, left, among other bequests, £10,000 to Gorseinon Hospital, £3000 to Swansea General and Eye Hospital, £500 each to Swansea and South Wales Institution for the Blind, the Royal Cambrian Institution for the Deaf and Dumb, Swansea, and Swansea Orphan Home for Girls.—The late Mr. T. A. Fisher, of Northampton, left, among other bequests, £500 to Northampton General Hospital for endowing a bed, and on his wife's death £2000 to Northampton and County Crippled Children's Fund, £500 to Northampton General Hospital, £300 to the Northampton and County Association for Promoting the General Welfare of the Blind, £300 to Victoria Nursing Home, Northampton, and the ultimate residue of the property equally between Dr. Barnardo's Homes and Moorfields Eye Hospital, London.—By will the late Dame Grace Revere Osler, widow of the late Sir William Osler, left £10,000 to the McGill College, Montreal, Canada, for the upkeep of the Osler Library; £5000 to the Jefferson Medical College, Philadelphia, United States, for the establishment of a Lectureship in Surgery, in memory of Dr. Samuel W. Gross, her first husband; £2000 to the Tudor and Stuart Club or Library of the Johns Hopkins University, Baltimore, United States; £2000 to the Radcliffe Infirmary, Oxford, for the Osler Pavilion; £600 to the Gross Library at the College of Physicians, Philadelphia; £200 each to the Acland Home, Oxford, and the District Nurses' Association, Oxford.

ALVARENGA PRIZE.—The College of Physicians of Philadelphia announces that the next award of this prize, amounting to about $300, will be made on July 14th, 1929. An essay intended for competition may be upon any subject in medicine, but must not have previously appeared in print, or been presented elsewhere in competition for a prize. Essays must be received on or before May 1st, 1929, by the secretary of the College at 19, South 22d-street, Philadelphia, Pa., U.S.A., from whom further particulars may be obtained.

The Alvarenga prize for 1928 has been awarded to Dr. J. R. Paul and Dr. W. U. McClenahan, Philadelphia, for the essay entitled A Pathological Study of the Pleural and Pulmonary Lesions in Rheumatic Fever.

PUBLIC HEALTH CONGRESS DINNER.—On Nov. 20th Sir Frederick Willis presided at a banquet at the Savoy Hotel. The Rt. Hon. H. P. Macmillan, proposing the toast "Parliament," defended the parliamentary system of legislature, despite its delays and exasperations, and paid a tribute to the loyal work done in Committee. He thought it a mistake to have too many professional men in Parliament; the duty of Parliament was to be constructive, and professional men were apt to be destructive and critical. Adequate representation of the medical profession, however, was essential. Dr. A. Vernon Davies responded, and described the sorrows of a Member's lot. "The Public Health Services" was proposed by Sir Henry Keith, who criticised the proposed rating reforms, which, he thought, would be disadvantageous to many public health services. The toast was acknowledged by Dr. W. M. Willoughby, who said that in the English people there was a genius for or an inculcated habit of health, and they had carried the public health idea throughout the world. Sir Edmund Barnard proposed the health of the chairman, who described the origin of the Congress and its object in bringing together the practical and scientific side of public health work (see p. 1079). He related his part in elevating the Local Government Board from a junior branch to one of the most important departments of State. The Congress was designed to enhance still further the importance of the public health administration. It was hoped to found a Chair of Public Health at a university. Progress could only be made by constant research, constant application of research, and the devotion of Government officials. He hoped the Congress would become a biennial institution, and proposed the health of the secretaries. Mr. Warner Terry replied.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—Dr. J. Howard-Jones, the President, took the chair at the annual dinner of this Society, held at the Piccadilly Hotel London, on Nov. 15th. The toast of the Society was proposed by Mr. H. P. Macmillan, K.C., late chairman of the Royal Commission on Lunacy and Mental Disorder, who spoke of the debt owed by the public to their medical officers. He believed that the health of the people had been enormously benefited by recent legislation and its administration by members of the Society. There was a certain risk of too much interference with the lives of individuals, and the aim, he thought, should be not to do things for people but to teach them to do things for themselves. An immense amount of educative work was being done and was being reflected in the homes of the population. Dr. Howard-Jones, in responding, spoke of the vital statistics of the Society, which was now in its period of growth. Its 13 branches extended to India and the Malay States, but there was as yet no branch in Ireland. Preventive medicine—theoretically the greatest department of medicine—was now invading the other departments; yet the cost of the work controlled by M.O.H.'s throughout the country worked out at only 6s. 3d. per head of the population per annum. Dr. Howard-Jones believed that the interchange of medical officers was probably doing more to promote international goodwill than any other activity of the League of Nations. He concluded by speaking of the Society's secretary, Mr. G. S. Elliston, who had won the admiration and respect of every member. Dr. Charles Porter proposed the toasts of the Guests in a singularly happy speech devoted chiefly to their recreations. He apparently believed that public men should have no time for recreation. In reply, Dr. Haden Guest pleaded for more scientific thought in politics and public affairs. Over questions of public health there was seldom great excitement, the reason being that they had been properly weighed and analysed. There ought to be a conquest of other political questions by quiet-minded people. As we approached the general election there was less and less sober consideration of national problems, yet they needed as careful examination as the problems of local administration or science. He wished that there could be at least 50 medical M.P.'s and three medical Ministers. Dr. H. B. Brackenbury, chairman of Council of the British Medical Association, said that the distinction between curative and preventive medicine was becoming less and less real. Practitioners were now called upon to do both preventive and curative work. Mr. Henry Lesser, President of the National Association of Insurance Committees, referred to the need of coöperation between insurance organisations and the M.O.H. Councillor Walter Griffiths, Mayor of Newport, spoke warmly of the admirable work of the President for the town of Newport and for the mercantile marine, and Prof. H. Kerr proposed Dr. Howard-Jones's health. After this had been drunk with musical honours, the President briefly replied.

During the evening Mr. Charles Pond entertained the company with great success.

CONGRESS OF RADIOLOGY DINNER.—In the course of the Congress arranged jointly by the British Institute of Radiology and the Rontgen Society (reported in another column) a dinner was held at the Trocadero Restaurant, at which the President, Dr. G. W. C. Kaye, occupied the chair. After the loyal toast a silent tribute was paid to the memory of Dr. Robert Knox. Mr. Cuthbert Andrews proposing "The Institute," coupled with the name of the chairman, recalled the fact that while the combined society was only a year old, difficulties had already been overcome, and although the organisation and working were still far from perfect, with the active coöperation of every member the Institute was on the way to becoming a powerful body whose influence would be international. The President in his reply referred to the work of Béclère, J. J. Thomson and Rutherford to whom radiology was so deeply in debt, and recorded his appreciation of the efforts of the manufacturers to make the November meeting and exhibition a success. The forthcoming joint meeting of the Institute of Electrical Engineers and the British Institute of Radiology would, he felt sure, bring much benefit to radiology, and he terminated his remarks by assuring those present that the Institute would grow into a great and powerful body. Dr. A. L. Rowden, Vice-President, proposed "The Guests," associating with the toast the names of Sir Thomas Horder, Mr. H. T. Tizard, Lieut.-Colonel K. Edgcumbe, President of the Institute of Electrical Engineers, Mr. W. Sampson Handley, Mr. A. J. Walton, Dr. J. E. A. Lynham, and Sir Humphry Rolleston, Past President of the Institute. Sir Thomas Horder, in reply, referred to his long association with the late Dr. Knox and other pioneers. In view of the turn given by the press to certain remarks of his made at the Congress he took pains to assure his listeners that he found the assistance given by radiology in clinical work second to none. Mr. Tizard registered his appreciation of the close contact necessary between science and medicine, well exemplified in their combined society. Colonel Edgcumbe felicitated the society on the good work done at the recent international congress where the British view of the protection question had been adopted in its original form. Sir Humphry Rolleston proposed "The President," and Dr. Kaye, in reply, thanked the office-bearers, not forgetting the dinner committee, for their timely interest and assistance, and in his turn proposed "The Past President." Auld Lang Syne was heartily sung in conclusion.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Nov. 26th.—8 P.M., ODONTOLOGY. Paper: Dr. E. W. Fish: Dead Tracts in Dentine. Casual Communication: Sir Frank Colyer: Irregularities of the Teeth in Erythrocebus (Patas Monkey).

TUESDAY.—5 P.M., MEDICINE. Clinical Meeting at University College Hospital, Gower-street. Cases: Dr. Poynton: Pernicious Anæmia in a Young Girl. Dr. Goodhart: Two Cases of Splenomegalic Familial Jaundice with Severe Crises of Anæmia. Dr. Elliott: Biliary Cirrhosis with Splenomegaly and Hypercholesterinæmia; Lymphosarcoma with Blood Picture of Pernicious Anæmia; Chronic Uræmia and Unusual Renal Radiogram. Dr. McNee: Splenectomy for Aleukæmic Leukæmia. Dr. H. A. Harris: Paget's Osteitis Deformans with Unusual Injury to Hip; Radiogram of Osteosclerotic Anæmia. Dr. K. E. Harris: Paroxysmal Tachycardia alleviated by Resection of Gastric Ulcer; Co-arctation of Aorta and High Blood Pressure. Dr. C. J. Fuller: Familial Polycystic Kidneys; Cholecystocolic Fistula.

WEDNESDAY.—5 P.M., COMPARATIVE MEDICINE. Paper: Dr. William G. Savage: Unsolved Problems of Salmonella Food Poisoning.

THURSDAY.—8.30 P.M., Sir William Bragg: Faraday's Diary, with illustrations and exhibits. Lloyd Roberts Lecture. (Admission by ticket only.)

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
MONDAY, Nov. 26th.—8 P.M.: Clinical Evening.

ROYAL INSTITUTION, Albemarle-street, W.
THURSDAY, Nov. 29th.—5.15 P.M., Dr. E. D. Adrian, F.R.S.: The Mechanism of the Nerves.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, London, W.C.
MONDAY, Nov. 26th.—8 P.M., Dr. Franklin Kidd, D.Sc.: Biology and Refrigeration. (Lecture III.)

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos-street, Cavendish-square, W.
FRIDAY, Nov. 30th.—8.30 P.M., General Meeting. A paper will be read by the President, Dr. F. J. H. Coutts, on Venereal Diseases from the Epidemiological Point of View. A discussion will follow.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Nov. 26th, to SATURDAY, Dec. 1st.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. Lecture by Dr. Donald Paterson: Some Problems in Infant Feeding, on Mon., at 5 P.M. Mr. Victor Bonney, at the Medical Society, on Gynæcological Talk. Wed., 11 A.M.—CENTRAL LONDON OPHTHALMIC HOSPITAL, Judd-street, W.C. Thurs., at 4 P.M. Demonstration by Mr. Cunningham.—PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N. Mon., at 2.30 P.M. Dr. A. J. Whiting (Ward Round).—WELLCOME MUSEUM OF MEDICAL SCIENCE, 33, Gordon-street, W.C. Wed., at 4 P.M. Demonstration by Dr. Philip Manson-Bahr on Prevention and Treatment of Malaria. The above are free.—ROYAL WATERLOO HOSPITAL, Waterloo-road, S.E. Special course in Medicine, Surgery, and Gynæcology.—ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, Broad-street, Holborn, W.C. Special Course.—ST. PETER'S HOSPITAL, Henrietta-street, W.C. Special Course in Urology.—WEST END HOSPITAL FOR NERVOUS DISEASES, 73, Welbeck-street, W. At 5 P.M. Lecture-demonstrations, illustrated by cases daily.—LONDON LOCK HOSPITAL, Dean-street, W. Clinical instruction in O.P. Department. Further information from the Secretary.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
MONDAY, Nov. 26th.—10 A.M., Dr. Dowling: Skin Department. 11 A.M., Mr. Tyrrell Gray: Surgical Wards 2 P.M., Mr. Simmonds: Surgical Out-patients.
TUESDAY.—11 A.M., Mr. Endean: Venereal Diseases (demonstration). 2 P.M., Dr. Shaw: Medical Out-patients. 2 P.M., Mr. Hamblen Thomas: Throat, Nose and Ear Department.
WEDNESDAY.—10 A.M., Dr. Burnford: Medical Wards. 2 P.M., Mr. Tyrrell Gray: Operations. 2.30 P.M., Mr. Donald Armour: Surgical Wards. 4.30 P.M., Dr. Carter Braine: X Ray Therapy.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Dr. Ironside: Medical Out-patients. 2 P.M., Mr. Bishop Harman: Eye Department.
FRIDAY.—10 A.M., Dr. Pritchard: Medical Wards. 2 P.M., Mr. Sinclair: Surgical Out-patients. 2 P.M., Mr. Vlasto: Throat, Nose and Ear Department.
SATURDAY.—9 A.M., Mr. Vlasto: Operation on Throat, Nose and Ear. 9.30 A.M., Dr. Burnford: Bacterial Therapy Department. 10 A.M., Dr. Owen: Medical Diseases of Children.
Daily 10 A.M. to 5 P.M., Saturdays 10 A.M. to 12 noon. Medical and Surgical In-patients and Out-patients. Operations, Special Departments, Anæsthetic Course.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.
MONDAY, Nov. 26th.—4.15 P.M., Dr. Charles Singer: Plague. Second lecture on the History of Medicine.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY, Nov. 26th.—2.30 to 5 P.M.: Medical, Surgical, and Gynæcological Clinics. Operations.
TUESDAY.—2.30 to 5 P.M.: Medical, Surgical, Throat, Nose and Ear Clinics. Operations.
WEDNESDAY.—2.30 to 5 P.M.: Medical, Skin and Eye Clinics. Operations.
THURSDAY.—11.30 A.M.: Dental Clinics. 2.30 to 5 P.M.: Medical, Surgical, and Ear, Nose and Ear, Nose and Throat Clinics. Operations.
FRIDAY.—10.30 A.M.: Throat, Nose and Ear Clinics. 2.30 to 5 P.M. Surgical, Medical, and Children's Diseases Clinics. Operations.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, Nov. 27th.—5 P.M., Dr. A. Whitfield: Tuberculosis Cutis (2).
THURSDAY.—5 P.M.: Dr. H. Haldin-Davis: Acne. Rosacea.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, Nov. 29th.—4 P.M., Dr. Pearson: Constipation.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W.C.
FRIDAY, Nov. 30th.—4 P.M., Mr. Watkyn-Thomas: Two Cases of Brain Abscess.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.
TUESDAY, Nov. 27th.—3.15 P.M. (at the Royal Chest Hospital), Mr. S. J. F. Webb: The Need of Removal or Conservation of Teeth in Relation to Systemic Disease

ST. PAUL'S HOSPITAL POST-GRADUATE COURSE, Endell-street, W.C.
THURSDAY, Nov. 29th.—4.30 P.M., Mr. Kenneth Walker: The Enlarged Prostate.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.
WEDNESDAY, Nov. 28th.—4 P.M., Dr. H. M. Vernon: The Fatigue of Heavy Industrial Work, and its Influence on Health and on the Duration of Working Life. (With lantern illustrations.)

JOINT TUBERCULOSIS COUNCIL POST-GRADUATE COURSES.
MONDAY, Nov. 26th, to SATURDAY, Dec. 1st.—A Post-Graduate Course of Lectures and Demonstrations on the Pathology of Tuberculosis and Allied Chest Diseases will be held at the City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E. Further particulars from Dr. W. Brand, The Larches, Farnham Royal, Bucks.

CHADWICK PUBLIC LECTURES.
MONDAY, Nov. 26th.—7.30 P.M. (in the University College of the South West, Exeter), Dr. P. B. Ballard: Open Air Schools.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.
TUESDAY, Nov. 27th.—4.15 P.M., Mr. D. L. Sewell: Foreign Bodies in Food and Air Passages.
FRIDAY.—4.15 P.M., Dr. G. E. Birkett: General Principles of Radium Therapy.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.
FRIDAY, Nov. 30th.—3.30 P.M., Mr. Cuff: Surgical Cases.

Appointments.

ADAM, J. N., M.B., Ch.B. Edin., F.R.C.S. Edin., has been appointed Hon. Surgeon to the Chester Royal Infirmary.
ANGUS, W. B. G., M.D. Camb., F.R.C.S. Edin., a Medical Referee under the Workmen's Compensation Act for the District of Stirling, Dumbarton and Clackmannan.
GLAISTER, J., jun., M.D., Ch.B. Glasg., Professor of Forensic Medicine in the University of Cairo and Medico-legal Adviser to the Egyptian Government and Courts.
LEASK, R. L., M.B., Ch.B. Glas., D.P.H., Assistant Tuberculosis Officer for the Eastern Division of the County of Fife.
LISTER, A. R., M.B., B.Chir. Camb., F.R.C.S. Eng., Assistant Surgeon, York County Hospital.
LORD, J. R., C.B.E., M.D., C.M. Edin., Hon. Lecturer in Clinical Psychiatry, London School of Medicine for Women.
O'DOHERTY, M. I., M.B., B.Ch. N.U.I., Medical Officer of Nobber, Meath.
WILSON, W. ETHERINGTON, F.R.C.S. Eng., Hon. Consulting Surgeon to Totnes and District Cottage Hospital, Devon.
Certifying Surgeons under the Factory and Workshop Acts: BLORE, W. R., M.B., B.S. Lond., M.B., Ch.B. Manch. (Halesowen, Worcester); and PARGETER, H. A. A., M.B., B.Chir. Camb. (Dunstable).

Vacancies.

For further information refer to the advertisement columns.

All Saints' Hospital for Genito-Urinary Diseases, 91, Finchley-road, N.W.—Hon. Anæsthetist.
Barnsley, Beckett Hospital and Dispensary.—Jun. H.S. £140.
Birmingham, Highbury Hospital.—Jun. M.O. £300.
Birmingham University.—Lecturer in Physiology. £400.
Bootle Borough Hospital.—Hon. Ophth. Surg.
Bradford, Royal Infirmary.—Res. Surg. O. £250.
Brighton, Borough Infectious Disease Hospital and Sanatorium.—Res. M.O. £350.
Bristol General Hospital.—Hon. Clin. Assts.
Bristol, Ham Green Fever Hospital and Sanatorium.—Asst. Res. M.O. £300.
Buxton, Devonshire Hospital.—Asst. H.P. At rate of £150.
Cambridge University, Pathological Laboratory.—John Lucas Walker Studentship. £300.
Cancer Hospital, Fulham-road, S.W.—H.S. At rate of £100. Also Surg.
Cardiff Royal Infirmary.—H.S., Aural H.S. Also Cas. Surg. O. Each at rate of £50.
Carlisle, Cumberland and Westmorland Mental Hospital, Garlands.—Asst. M.O. £350.
Central London Throat, Nose and Ear Hospital, Gray's Inn-road, W.C.—Asst. Surg.
Charing Cross Hospital, W.C.—2nd Surg. Registrar. £150.
Chelsea Hospital for Women, Arthur-street, S.W.—Jun. H.S. At rate of £100.
City of London Maternity Hospital, City-road, E.C.—Asst. Res. M.O. At rate of £80.
Croydon General Hospital.—Res. M.O. £200.
Dagenham Urban District Council.—Asst. M.O. for Maternity and Child Welfare. £600.
Dorset Mental Hospital, Herrison, Dorchester.—Jun. Asst. M.O. £300.

Dreadnought Hospital, Greenwich, S.E.—Asst. Pathologist to London School of Clin. Med. £350. Also Med. Supt. £300.
Durham, Richard Murray Hospital, Blackhill.—Res. M.O. £450.
Guildford, Royal Surrey County Hospital.—Hon. Ophth. S. Also Hon. Asst. S.
Hendon Cottage Hospital, N.W.—Hon. Asst. Aural Surg.
Hexham Rural District Council.—Asst. County M.O. &c. £800.
Hospital for Consumption, &c., Brompton, S.W.—Sen. and Jun. H.S. for Frimley Sanatorium. At rate of £150 and £100 respectively.
Hospital for Sick Children, Great Ormond-street, W.C.—H.P. and H.S. Each at rate of £100. Also Res. M.O. for Country Branch Hospital, Tadworth, Surrey. At rate of £250.
Hull Royal Infirmary.—Cas. H.S. At rate of £130.
Kensington, Fulham, and Chelsea General Hospital, 194, Finborough-road, Earl's Court, S.W.—Res. M.O. At rate of £100.
London Lock Hospital, 91, Dean-street, W.—H.S. At rate of £200.
London School of Hygiene and Tropical Medicine, Malet-street, W.C.—Lecturer in Applied Physiology. £475.
Manchester Northern Hospital for Women, &c., Park-place, Cheetham Hill-road.—Sen. H.S. £130. Also Jun. H.S. £100.
Manchester Royal Infirmary.—Director of Lab. for Clinical Investigation. £600. Also Asst. Res. Surg. O. At rate of £150.
Metropolitan Hospital, Kingsland-road, E.—Asst. Surg.
Miller General Hospital for South-East London, Greenwich-road, S.E.—H.P. and H.S. Each at rate of £125.
National Hospital, Queen-square, W.C.—H.P. £150.
Nottingham and Midland Eye Infirmary.—Res. H.S. £200.
Poplar Hospital for Accidents.—Hon. Dental Surgeon.
Prince of Wales's General Hospital, Tottenham, N.—Hon. Anæsthetist. £20. Also Hon. Clin. Assts.
Prison Medical Service.—M.O. (Class II.). £350.
Queen Mary's Hospital for the East End, Stratford, E.—H.S. and Obstet. H.S. Each at rate of £120.
Redruth, Cornwall, West Cornwall Miners' and Women's Hospital. Radiographer.
Rochester, St. Bartholomew's Hospital.—Res. Surg. O. At rate of £225.
Royal Waterloo Hospital for Children, &c., Waterloo-road, S.E.—Pathologist. £250.
St. Albans and Mid-Herts Hospital and Dispensary.—Res. H.S. £150.
St. Bartholomew's Hospital, E.C.—Asst. Surg. to Throat Dept.
St. Mary (Islington) Infirmary, Highgate Hill, N.—Asst. M.O. At rate of £350.
St. Marylebone Hospital, Ladbroke-grove, W.—Third Asst. M.O. £300.
St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Garden, W.C.—Clin. Assts.
Salisbury, General Infirmary.—Pathologist. £1000.
Shanghai Municipal Public Health Dept.—Asst. Radiologist. Also Asst. Pathologist. 700 and 650 taels per month respectively.
Sheffield, Royal Infirmary.—Jun. Aural and Ophthalmic H.S. At rate of £80.
Sheffield University.—Sen. Demonstratorship in Anatomy. £400.
Southampton, Free Eye Hospital.—H.S. £150.
South-Eastern Hospital for Children, Sydenham.—Hon. Asst. Phys.
South London Hospital for Women, South Side, Clapham Common, S.W.—Clin. Assts.
Surrey County Council, Kingston-upon-Thames.—Asst. M.O. £800.
Taunton and Somerset Hospital.—Jun. House M.O. At rate of £100.
University College Hospital, Gower-street, W.C.—Ophth. Reg. £50.
West London Hospital, Hammersmith-road, W.—H.P., H.S. Also Aural and Ophth H.S. Each at rate of £100.
York County Hospital.—H.P. £150.

Births, Marriages, and Deaths.

BIRTHS.

HECKELS.—On Nov. 18th, at Ashley-road, Epsom, the wife of Graham W. Heckels, M.B., B.S. Lond., of a daughter.

MARRIAGES.

ATKINSON—HUNTER.—On Nov. 15th, at Victoria-road, Queen's Park, Glasgow, Surgeon-Captain Edward Leicester Atkinson, D.S.O., A.M., F.R.C.S., to Mary Flint, only daughter of the late Mr. and Mrs. John Hunter, Queen's Park, Glasgow.

MACPHERSON—CLAYDON.—On Oct. 22nd, at Lahore, India, Norman Stewart Macpherson, F.R.C.S., to Thelma, fifth daughter of Canon and Mrs. Claydon, Sydney, N.S.W.

DEATHS.

BARNARD.—On Nov. 17th, John Henry Barnard, O.B.E., M.D., M.R.C.S., aged 75.

COKER.—On Nov. 16th, at Chamberlain-street, Wells, Somerset, Owen Cole Coker, L.R.C.P. Lond., late of Uxbridge-road, W., and of The Towers, Bigbury-on-Sea.

DASHWOOD.—On Nov. 14th, at, Rodney-road, S.E., Charles Ewart Dashwood, M.R.C.S., L.R.C.P., late of Taormina, Sicily, aged 58.

NOAD.—On Nov. 14th, at Hove, Ernest Noad, M.R.C.S. Eng., L.R.C.P. Edin.

RACKHAM.—On Nov. 15th, at North Elmham, Norfolk, Arthur Richard Rackham, M.R.C.S., L.R.C.P.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

DISEASES OF THE EYE IN RELATION TO GENERAL MEDICINE.*

BY GLADYS M. WAUCHOPE, M.D., M.R.C.P. LOND.,
ASSISTANT PHYSICIAN TO THE NEW SUSSEX HOSPITAL FOR WOMEN AND CHILDREN, BRIGHTON.

Oculi indices animi sunt.—That the eyes are the informers of the mind is true in medicine both of what we see with our own eyes and of what we observe in our patients' eyes. To begin with, we learn much from the way in which the patient looks at us. A shifting nervous eye may put us on the track of some mental trouble aggravating or indeed causing symptoms. Exophthalmos, squints, unequal or unusually small pupils may be valuable indications. The general appearance of the eye is often characteristic—for instance, the almond-shaped eyes of Mongolian idiocy and the half-closed eyes of tuberculous meningitis—while a large, bright eye with a good deal of the white showing is associated with hysteria.

The eye may hoist a danger-signal that brings a patient to his doctor. A healthy person suddenly "sees double." This may indicate a central lesion and be the first symptom of encephalitis lethargica, tabes dorsalis, or disseminated sclerosis, or the double vision may be due to a peripheral lesion and may indicate basal meningitis, meningo-vascular syphilis, neuritis due to poisons such as lead and alcohol, or endogenous toxic conditions such as diabetes, where the sixth nerve is particularly liable to be affected. (Maitland Ramsay.)

Sudden loss or defect of vision is another alarming symptom and may lead to the discovery of various conditions, many of them purely local, while others are the visible signs of a general disease. Among the latter are: 1. Retinitis, diabetic or albuminuric. 2. Retinal hæmorrhages, associated with advanced arterio-sclerosis. 3. Embolus of the central artery of the retina or thrombosis of the vein leads to the loss of sight in one eye, and may be associated with heart disease, syphilis, arterio-sclerosis, &c. 4. Papilloedema due to intracranial tumour, especially of the pituitary, when bitemporal hemianopia is also present. 5. Optic neuritis and optic atrophy, in tabes and general paralysis of the insane, and occasionally in disseminated sclerosis and acute myelitis. 6. Toxic amblyopia, an interstitial neuritis of the optic nerve brought on by the excessive consumption of tobacco and alcohol. 7. Endogenous toxic amblyopia or amaurosis, diabetic or uræmic; uræmia, indeed, is said to be the most common cause of sudden blindness. 8. Night-blindness, which may be an early symptom of adult scurvy. 9. Hysteria, where the eye itself is normal.

The Eye in Diagnosis.

The eye may be a "sign-post" pointing to an otherwise doubtful conclusion: 1. A coincident iritis in a case of multiple arthritis incriminates the gonococcus. 2. Interstitial keratitis in the absence of typical (or any) teeth indicates congenital syphilis. 3. Unequal or fixed and contracted pupils in a case of mental derangement point to general paralysis of the insane. 4. "The glittering eye" of early Graves's disease suggests the diagnosis, before exophthalmos or other definite signs appear. 5. A hæmorrhage into the orbit may suggest scurvy. 6. Exophthalmos in a child with an obscure abdominal tumour indicates Hutchison's renal sarcoma (neuroblastoma). 7. Exophthalmos may point to chloroma and lead to the discovery of leukæmia. 8. The greenish corneal pigment identifies progressive lenticular degeneration. 9. How often does the general practitioner look at weepy red eyes and say "I think this child is sickening for measles"? 10. Œdema of the eyelids may occur in chronic arsenical poisoning.

In other diagnostic problems the eyes may give the "casting vote": 1. Examination of the optic disc may decide between cerebral tumour and meningitis. 2. Nystagmus establishes a diagnosis of disseminated sclerosis and puts hysteria out of court. 3. A tuberculous nodule in the choroid distinguishes the two common forms of meningitis in children. 4. Argyll Robertson pupils decide for tabes against a pure spinal cord lesion.

In the localisation of the site of a lesion the eye may be invaluable. Hemianopia places the lesion in a particular part of the optic tract; pin-point pupils indicate the pons; dilatation of one pupil shows that there is irritation of the cervical sympathetic. Loewy's midriatic test for pancreatic insufficiency depends on pupil reactions.

* A paper read before the Medical Women's International Association at Bologna.

The Eye in Prognosis.

Hippocrates, in the work entitled Prognostikon, described the "hollow eyes" ὀφθαλμοὶ κοῖλοι as part of the Hippocratic facies which we still recognise with dismay. Examination of the fundus is particularly useful in determining the outlook. In some conditions—e.g., tuberculous choroiditis—diagnosis is prognosis. The presence of retinitis in renal disease or diabetes makes the outlook grave, though I have seen diabetic retinitis improve and sight return with insulin. In hyperpiesis the presence of early arterio-sclerosis, making the prognosis less hopeful, can be detected in the vessels of the fundus, which become irregular in calibre and cross one another at right angles.

The Eye in Disease.

The eye is seldom the "fons et origo mali," for it is well protected from infection and is shut off, as it were, in its own cavity. Occasionally, however, infection of the orbit, usually after injury, spreads to the meninges and more rarely leads to septicæmia. Errors of refraction may cause headaches, insomnia, lack of concentration, and other symptoms of neurasthenia, and are said to be sometimes the cause of migraine. On the other hand, the eye may be affected in certain general infections; syphilis, gonorrhœa, and tuberculosis sometimes cause iritis, irido-cyclitis, and choroiditis, and uveitis may also arise as a result of nasal, oral, genito-urinary, or other so-called "focal infections." Conjunctivitis occurs in influenza, diphtheria, measles, and small-pox, and in cerebro-spinal fever it may be purulent and associated with neuritis of the fifth nerve. Herpes of the cornea is found occasionally in infections of the respiratory tract, from the common cold to pneumonia, and also in whooping-cough and typhoid fever.

The eye also takes part in various non-infective general diseases—e.g.: 1. The hemianopia of migraine. 2. The visual aura of epilepsy. 3. The rotatory and convergent nystagmus associated with spasmus nutans in children. 4. The yellow conjunctivæ and the xanthelasmata which occur in obstructive jaundice. 5. The lacrymation, aching of the eyes, and photophobia of hay-fever. 6. Blindness or disturbance of vision is sometimes part of a "stroke."

Glaucoma is a localised condition which simulates a general disease; it often begins with headache and vomiting, symptoms which may be attributed to a gastric disorder, a "bilious attack," renal or cerebral conditions.

Certain characteristics of the eye have been associated with the preponderance of one or other of the endocrine secretions. The "thyroid and adrenal eye" is prominent, active, with a large pupil, while the "pituitary eye" is deep-set in a massive orbit with overhanging ridges and the eyeballs wide apart. (I. Geikie Cobb.)

Keratomalacia is associated with deficiency of vitamin A.

Inheritance.

Cataract is a well-known hereditary and familial condition both when congenital and when appearing later in life; the inheritance is direct and not sex-linked. I have a patient, a woman with bilateral congenital cataract, whose maternal grandfather, mother, uncle, and aunt were all affected; the ordinary senile cataract also tends to run in families. In myotonia atrophica (dystrophia myotonica), not only is early cataract found in a large proportion of patients, but also in otherwise healthy members of the family; moreover, senile cataract is common in preceding generations, and appears to come on at earlier ages in each succeeding generation, until it is associated with an outbreak of myotonia atrophica in several descendants from a common ancestor. (Adie, W. J.: Proc. Roy. Soc. Med., Neurol. Section, 1923, xvi., 36.)

Blue sclerotics is another hereditary condition of the eye associated with a general disease—viz., fragilitas ossium. Five generations in a family have been known to have blue sclerotics (H. R. Swanzy), and although brittle bones sometimes occur alone, the association of the two conditions is striking.

Many other conditions—e.g., albinism, retinitis pigmentosa, and coloboma—appear to be directly transmitted. Amaurotic family idiocy is almost confined to the Jewish race, and as many as five children in a family of seven have been affected (Swanzy). Colour-blindness and Leber's disease, a hereditary optic neuritis or atrophy, are like hæmophilia in that they affect males only and are transmitted by unaffected females.

In these ways and in many others which I have neither the time nor the knowledge to put before you, does a study of the eye help us to "discover Nature's secrets."

ROYAL NORTHERN GROUP OF HOSPITALS. — A festival dinner will be held at the Savoy Hotel, Strand, on Dec. 5th at 7.30 P.M. Lord Northampton will preside, and Lord Bearsted will be among the guests.

A TUDOR ACT OF INDEMNITY FOR UNQUALIFIED PRACTICE.

Mr. M. Teichman-Derville, Mayor of New Romney, sends us a copy of a proclamation of Henry VIII., relative to the Fellowship of the College of Surgeons at that time, which he has discovered among the ancient records of the corporation. It has been lying with many other records—dating from about A.D. 1380 onwards—in the Muniment Room at the New Romney Town Hall, and is in a very good state of preservation. The exact wording is not clear in two small places where the document has been torn, and these imperfections are marked in the copy.

An ACT that PERSONS, beinge no COMMON SURGIONS, may MINISTER OUTWARDE MEDICINES.

Where in the Parliament holden at Westmynster in the iii yere of the Kynge's moste gracious reigne, amongest othere thynges, for the advoiding of sorceries, witchecraft, and other inconveniences, it was enacted that no person within the citie of London nor within vii miles of the same, shulde take upon hym to exercise and occupie as phisition or surgion, except he be fyrst examined approved and admitted by the bysshop of London, and others, under and upon certeyne peynes and penalties in the same act mentioned.

Sithens the makynge of which sayde acte, the company and felowship of surgions of London, minding onely theire owne lucres, and nothyng the profyte or ease of the diseased or patient, have sued, troubled and vexed divers honest persons, as well men as women, whom god hath endued with the knowledge of the nature, kynde and operation of certeyne herbes, rootes and waters, and the (administering)* of them to such as ben peyned with customable diseases: as women's † sore, a pin, and the webbe in the eye, uncomes of handes, scaldinges, burninges, sore mouthes, stone strangury, saucelim, and morfew, and such other like diseases: and yet the sayd persons have not taken anythynge for theyr peynes, or cunninge, but have ministered the same to the poore people onely for neyghbourhood and goddes sake, and of pitie and charitie.

And it is nowe well knowen, that the surgions admitted, wyll do no cure to any persone, but where they shall knowe to be rewarded with a greatter summe or rewarde than the cure extendeth unto, for in case they woulde minister theyr cunninge to sore people unrewarded, there shulde not so many rotte and perishe to death for lacke of helpe of surgery as dayly do: but the greatteste parte of the persones of the sayde crafte of surgions have small cunninge, yet they wyl take great summes of money, and do lyttle therefore, and by reason thereof, they do often tymes empaire and hurt theyr pacientes, rather than do them good.

In consideration wherof, and for the ease, comfort, succour, helpe, reliefe, and helthe of the Kynge's poore subjectes, inhabitauntes of this his realme, nowe peyned or diseased, or that hereafter shalbe peyned or diseased, be it ordeyned establyshed, and enacted by the authority of this present parliament, that at all times from hensforthe, it shall be lefull to every person beynge the Kynge's subjecte, havynge knowledge and experience of the nature of herbes, rootes and waters, or of the operation of the same, by speculation or practise, within any parte of the realme of Englande, or within any other the Kynge's Dominions, to practise use, and minister in and to any outward sore, uncome, wounde, apostemations, outwarde swellynge, or disease, any herbe or herbes, oyntment, bathes, pultes and emplasters, accordyng to theyr cunninge, experience and knowledge in any of the diseases, sores and maladies before sayde, and all other like to the same, or drinkes for the stone strangury, or agues; without sute, vexation, trouble, penaltie or losse of theyr goodes: the foresayde statute in the foresayde iii yere of the Kynge's moste gracious reigne, or any other acte, ordinaunce, or statute to the contrary herof hertofore made in any wise not withstandinge.

GOD SAVE THE KING.

Thos. Berthelet regis impressor excutit cum privilegio ad imprimendum solum.

Sir Arnold Lawson, who has seen the proclamation, writes: "There is no doubt of its authenticity. The document was among a bundle of old proclamations dating from the reign of Henry VIII. It is obvious that, at this time, the King had an extremely poor opinion of our profession and its morality; it is instructive to learn that a high dignitary of the church was required to act as Chairman of the Court of Examiners. From time immemorial the medical profession has been waging ceaseless war with 'quacks.' Evidently when this proclamation was issued the 'quacks' were getting a bit of their own back, and were scoring freely over their 'learned' opponents.

"The diseases mentioned in the proclamation are interesting from two points of view—

"(1) Why, besides denouncing in general terms the methods and customs of qualified practitioners, was attention drawn to a specified list of diseases and to 'all others like to the same'; because the herbalists certainly did not limit their attention to any class of disease, and everything was a fish which came into their net; and

"(2) What diseases are indicated by the terms (*a*) 'Pin,' (*b*) 'Saucelim,' and (*c*) 'Morfew.' A 'Webbe in the Eye' must, I think, point to cataract, though I have been under the impression that this disease was known generally as cataract long before the time of Henry VIII."

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* Part of word indecipherable. † Word obliterated.

RESEARCH IN MENTAL DISEASE.

THE annual report of the Joint Board of Research for Mental Diseases of the city and University of Birmingham records a great deal of routine work—3861 specimens in all—and 45 autopsies, as well as the continuation and elaboration of the research of past years. The investigation of the fat-lipoid-cholesterol ratios in adrenals and gonads is ready for publication, and further experiments on basal metabolism have been carried out. A special technique has been developed for investigating the bacteriology of the nasal sinuses, and an attempt has been made to correlate endocrine disturbances with septic conditions in the region of the pituitary gland. One case clearly showed the passage of organisms from the sinus membrane into bone, dura mater, and pituitary. The permeability quotient has been investigated with reference to changes which might follow non-protein and arsenical therapy in general paralysis.

A NEW POCKET HEAD LAMP.

THE Holborn Surgical Instrument Company, Ltd., 26, Thavies-inn, Holborn-circus, London, W.C., have placed on the market a new pocket head lamp which is contained, complete with battery, when not in use, in a little leatherette case measuring $5\frac{1}{4} \times 3 \times 1\frac{1}{4}$ inches. In use the special filament lamp is connected to the battery by a length of flex, a lens cap concentrating the light on one spot. The lamp is fitted to an elastic head band, and the apparatus makes a very compact and convenient means for examination purposes. The lamp is switched on and off by means of the ball and spring contact by which it is hinged to the forehead piece. The price of the apparatus is moderate, and spare lamps and batteries can easily be obtained.

CONCENTRATED DIPHTHERIA ANTITOXIN.

British Drug Houses, Ltd. (16–30, Graham-street, City-road, London, N.1.) are now prepared to supply a super-concentrated and refined diphtheria antitoxin (D.S.I.) containing 2500 Ehrlich units per c.cm. with a protein content not exceeding that of natural serum. This enhanced therapeutic action has therefore been obtained without any increased risk of serum sickness, and without impairment of the reaction velocity of the antitoxin. The D.S.I. brand contains two and a half to five times the number of antitoxin units contained in an equal volume of ordinary natural serum. Its use is recommended in cases of diphtheria where time is of vital importance. It is supplied in rubber-capped phials containing 10,000 or 20,000 units. Kept in a cool and dark place, the serum is believed to retain its antitoxic potency for at least two years.

THE RADIOGRAPHER'S PONS ASINORUM.

Dr. W. Cotton, who has written extensively on X ray technique, sends us a reprint of a paper which he read at the recent Congress of Radiology at Stockholm. In this paper he dealt pictorially with perspective in relation to X ray interpretation, and emphasised particularly what he describes as the "pons asinorum radiographicus." Starting from the axiom that perspective deals with correct picture-making and viewing by straight lines radiating through the "original station point" (OSP), including images formed on any picture plane (PP) by X rays, photograph or drawing, he remarks that in radiography the OSP is the centre of emission of the focus tube and the only proper centre for the interpreter's eye, looking towards the objects portrayed. The pons asinorum he states thus: (1) The remote side of the PP is not a picture from their remote side of the parts depicted. (2) The remote side of any picture is a picture of the parts reversed as in a plane mirror. (3) A fluorescent screen in action is not a transparent window pane, but only a translucent window-blind viewed from the street, with the contents of a locked antechamber shadowed thereon from the keyhole.

MICROSCOPES.

THE sectional catalogue (List E 7) issued by Messrs. Reichert (Vienna) describes very fully the range of instruments and accessories manufactured by them. The microscopes range from low-power dissecting magnifiers of various types to large binocular instruments and specialised forms for mineralogical and biological work. Sectional diagrams illustrate the optical and mechanical details of many of the instruments, and tables are given showing the magnification produced by various combinations of objective and eyepiece. In the photomicrographic section weight and bulk have been economised to a high degree without sacrifice of the essential rigidity. Several of the cameras shown can be adjusted for copying, slide-making, and photographing small objects without the use of the microscope. The advance in lightness and adjustability is to be seen in the epidiascope described, which is smaller than many of the standard forms and can, amongst its other adjustments, be used to project a cinema film.

PRESERVATIVES IN FOOD.

THE International Office of Public Hygiene at Paris has sent out a questionaire to all countries relating to the preservatives and colouring matter in food permitted for home use, for export, and for those at sea. Replies received from the Polish Republic and from Japan have been published as a supplement to the monthly *Bulletin* for August issued by the International Office. In regard to Poland the replies are no longer valid, since in July, 1928, a new law came into effect based on the practice of the Austrian and Prussian provinces. In Japan the only legal preservative is salicylic acid, which is allowed in "saké," the national beverage, to the amount of 208 mgm. per litre. The tolerated amounts of preservatives seem generally to be higher in our own country than in the other countries mentioned. On the other hand, we treat the whole world alike; the regulations made by the Minister of Health appear to apply to all articles manufactured for sale or sold, whatever their destination. The Japanese restrictions also apply to all alimentary products which are manufactured in Japan, whether they are destined for consumption in the country itself or for exportation. Poland specifically excluded from the restrictions "alimentary products destined to be exported or employed as provisions aboard ships." It is difficult to gather whether this exemption was due to a disregard for the welfare of the seafaring man and the foreigner or to a deliberate choice of the supposed lesser of two evils on a long voyage—preservatives or putridity. It may be significant that the two island States, England and Japan, apply the same restrictions to foods for the sailor as to those for the landsman. Even in these days of hustle on the sea the crew of a tramp steamer get limited opportunities of enjoying fresh food.

THE FEEDING OF YOUNG CHILDREN.

THE object of a little book[1] which reaches us from America is to help those who have the task of arranging meals for children between the ages of 2 and 6 to observe a just balance between the various food elements, and to ensure the use of a dietary which may be relied upon to produce normal development. Menus are supplied for every month in the year, to be used as a working basis for family meals, and a whole section is devoted to preparation and cooking of food with recipes embodying the articles recommended. The book bears evidence of its nationality, and some modification will be needed in this country. The prudent English mother would hesitate to include fresh peaches and pineapples in the daily fare, and "white squash," "cambric tea," and "pettijohn" must convey more to the American than to the English public. These, however, are details, and the conscientious housewife will be grateful to find in the pages of this volume much thinking and planning done for her, and will welcome Dr. Richard M. Smith's assurance in his foreword that "any mother can safely use this book and be reasonably sure that her child's requirements in quantity and kind of food will be adequately met." Appendices contain lists of foods according to their vitamin content, and their protein and mineral relation to caloric values.

[1] Feeding the Child from Two to Six. By Mary Frances Hartley Barnes. New York: The Macmillan Company. 1928. Pp. 206. 10s. 6d.

GIFT FOR THE PURCHASE OF RADIUM.—The patient of a member of the staff of St. Bartholomew's Hospital, who has been successfully treated with radium, has given £14,000 anonymously to the hospital towards the extension of facilities for this treatment. The money will be used to purchase more radium and to instal an emanation plant.

TUNBRIDGE WELLS WATER-SUPPLY.—Tunbridge Wells Corporation is seeking Parliamentary powers to purchase compulsorily about 805 acres of land between Matfield Green and Pembury with a view of securing control of the town's chief source of water-supply. A sum of £70,000 is involved in the scheme, and the proposal was accepted by the corporation without any discussion.

NEW HOSPITAL AT ILFORD.—The Lord Mayor of London and the chairman of the London County Council are appealing for money for the erection of the King George Hospital at Ilford to serve the rapidly growing population of the Thames-side area which includes the Council's Becontree housing estate. It is hoped that the Ilford Emergency Hospital may form the nucleus for a voluntary general hospital of 300 or 400 beds. King Edward's Fund have promised a first contribution of £10,000 provided that at least as much is forthcoming from other sources. The County Council is providing a similar sum.